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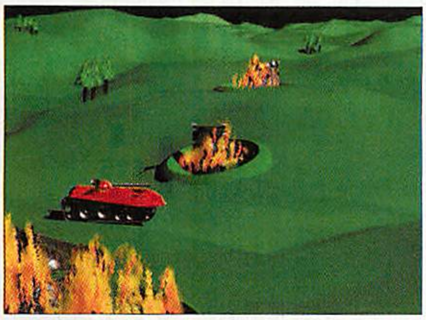
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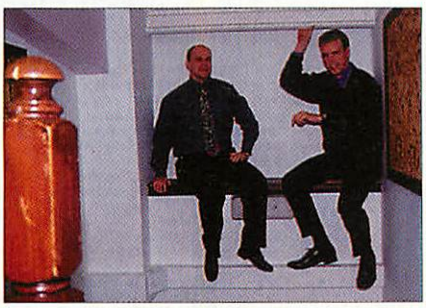
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contents

February 1997

• regulars





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• hands on

Advertisers index
See page 78

• education

• reviews

• features

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Seen at Comdex this year





ALTHOUGH IT IS not the biggest IT show in the world – that accolade belongs to the annual CeBIT fair in Hannover, Germany – Comdex Fall in Las Vegas is definitely the most important as most big name companies choose either the run up to Comdex or the show itself to make important product launches.

In this 1996 show, it wasn't too difficult to spot Acorn and ARM-related technology around the show – including some Acorn staff working hard on demonstrations. A rather jet-lagged ART's Alastair France, (you may remember him from Acorn World – he was the guy hosting the PC destruction derby) evidently bemused by the complete unreality of Comdex and the sparkling city of Las Vegas, was busy showing off the Acorn NC as a guest of Digital Equipment.

When we caught up with him he was determinedly explaining to a couple of Japanese visitors from Sharp, who appeared not to speak much English, all about the ARM processor. He was too bashful to remind them that their company was one of the first licensees of the ARM processor.

Right next door to Alastair's Acorn NC was a modest Perspex box containing a circuit board and a small label. This was the Digital's very own StrongARM JavaOS machine which recently steam-rollered the competition in the CaffeineMark Java performance benchmarks. This wasn't a simple static exhibit, it was running JavaOS and Java applications for all to see. We could have been looking at a Sun JavaStation display, except faster.

Meanwhile, StrongARM-based products were winning prizes at Comdex. The Wyse WinTerm 4000 family of network computers won BYTE magazine's Comdex award for "Best System" and Apple's new MessagePad 2000 (see last month) was a finalist in the handheld computer category.

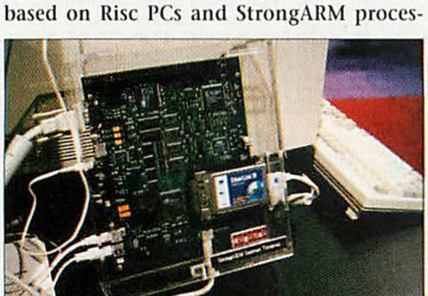
It was a bit of a surprise to bump into Stephen Streater at Comdex. There had been no hint that his company, Eidos, was to be at the show, but there they were on the UK pavilion. Stephen told us he had been delighting visitors on the stand with the quality and versatility of the latest Eidos *Optima* off-line editing system, which is based on Risc PCs and StrongARM processors. Delight was replaced by disappointment when Stephen's guests were told that the American NTSC version of *Optima* wasn't available just yet. Apparently, several people had offered to buy a system on the spot before they were told the system is only available for PAL video.





Undoubtedly, the show was headlined by Windows CE (see elsewhere this month). Casio was so optimistic about its own Windows CE product that it was lending out on sale or return thousands of its Cassiopeia models, complete with pre-loaded show guide. At the time of the show Windows CE was a bit depressing from an ARM/Acorn point of view, but the subsequent news that Windows CE is to be ported to ARM after all, is intriguing at least.

If you hadn't noticed Windows CE at Comdex, you must have noticed digital cameras. Everywhere you looked there was one being pointed at you, from Casio, Ricoh, Kodak, Sharp, Epson, Olympus, Fuji and so on. Minolta's Dimage was our favourite – you can detach the lens from the main body and tripod mount it for copying or other applications. If that wasn't enough, we even spotted an MPEG digital movie camera from Hitachi, designed to connect directly to a notebook PC.





CD-ROM drives – a mature technology if ever you saw one? 8x drives are now the entry-level and who needs anything faster? The industry thinks you do and 12x drives are already arriving in the shops. At Comdex, any manufacturer worth their salt was demonstrating prototype 16x CD-ROM drives! DVD ROM was also being demonstrated. This is the successor to the 660Mb standard CD-ROM format, using double-layered, double-sided, double density CDs to store up to 8Gb of data per CD.

Another jaw-dropping technology at the show was in the form of the latest flat panel LCD displays. While 800x600 resolution displays measuring 12.1 inches are currently the largest commonly used LCD panels size notebook PCs, companies like Sharp and NEC were showing 1024x768 panels in sizes up to 14 inches and above. Sharp showed the world's largest TFT (thin film transistor) LCD display at Comdex – all 40 inches of it, though this was a mere 640x480 pixels in resolution.

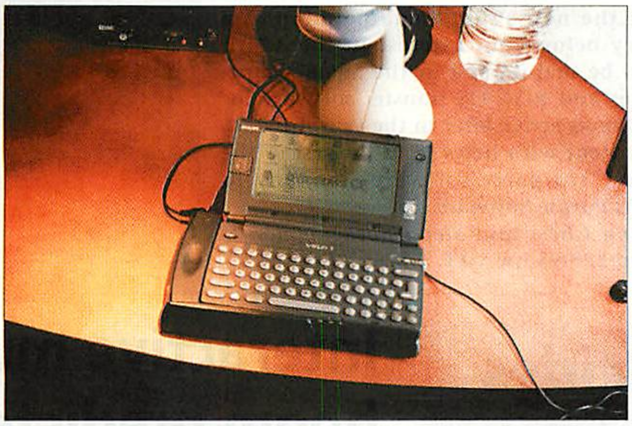
One futuristic exhibit came from a company called VIA. It was demonstrating a wearable computer. The main storage and processing units are ultra-thin and flat panels which can be clipped to a belt or other anchorage point.

For the demonstration, VIA staff were using US Robotics Pilot pen-computers linked to the computers they were wearing, though the system is not restricted to this make or model.

From a techno-buzz point of view, Comdex Fall 1996 was definitely one of the more interesting Comdex shows from the last few years and it looks like it can only get better as the global Acorn/ARM renaissance grows stronger.

news

Microsoft ports Windows CE to ARM



PERHAPS THE biggest headline last month for ARM-watchers was the news that Microsoft has actually ported a compact ROM-based version of Windows to the ARM processor family. However, before that, Microsoft dismayed the ARM community by first announcing its new Windows CE (Consumer Electronics) would work on one of ARM's main rival RISC processors, the Hitachi SH chip.

Only some three weeks later, and to considerable relief, did news filter through that Microsoft had also decided to port Windows CE to ARM. At the recent Comdex Fall computer trade mega-show in Las Vegas, Microsoft unveiled rock-solid industry support for the Hitachi port of Windows CE.

Palmtops running Windows CE on the Hitachi chip were launched by companies as diverse as Compaq, Hewlett-Packard, Casio, Phillips, LG and others. As we reflected in the January issue of AU, it was clear this could spell trouble for Psion's proprietary Epoc operating system, which is being ported to StrongARM.

Hitachi claims its chip, which is also used in the Sega Saturn games console, is the best-selling RISC chip in the world. There are millions of Saturn consoles and each one contains at least two Hitachi SH processors. This processor is one of the closest competitors ARM has as it is a compact design with good power characteristics and reasonably cheap to produce. However, although it compares adequately with lesser ARM models, it is not in the same league as the Digital StrongARM.

In a stroke Windows CE looked like denting the ARM market and even threatened to usurp Acorn's RISC OS operating system core as the full-strength ROM-based operating system of choice. However, now that Windows CE is to be ARM-friendly, the threat to ARM from Hitachi can be put into perspective.

It could also be said that the news is even worse for Acorn as it will be surely harder to sell RISC OS as a competitor to Windows CE. Unfortunately, as history has often told, being better than the competition is no guarantee of ultimate success.

Steve Williams, director of Business Development for ARM's Portable Segment, commented on the Microsoft deal, "In the four years since Apple pioneered the use of ARM in portable devices with the Newton Messagepad, ARM CPUs have been designed into cellular phones, pagers, GPS units, radios, wireless LANs – almost any kind of portable device you can think of. A port of Windows CE to ARM will expand the already large pool of software available, making it easier for OEMs to quickly adapt products to different or shifting markets."

"Microsoft is pleased to announce Windows CE support for the ARM RISC architecture," said Harel Kodesh, general manager of the consumer appliance group at Microsoft. "ARM adds considerable experience optimising CPU designs for small footprint operating systems and will help ensure OEMs will have a wide choice of high-performance semiconductors upon which to build new Windows CE-based devices."

Robin Saxby, president and CEO at ARM Ltd was understandably pleased: "We are delighted that Microsoft plan to port its latest software technology to the ARM architecture. Several of our semiconductor partners plan to incorporate this new platform into system-chip silicon solutions. As the emerging de facto standard in embedded RISC microprocessors, we believe this collaboration will further fuel this industry's rapid growth."

Hitachi may have stolen the limelight from ARM, but at least the latter will definitely keep the former on its toes.

ProAction for old Beeb games

WHO NEEDS these latest fancy 3D games with virtual worlds and impossible missions plus gameplay to match? Bring back the good old days when Beeb games were best. Bring back *Frak*, *E-Type*, *Zalaga* and others. That's exactly what ProAction in Romford is doing. The company appears to have a supply of original 8-bit Beeb software as well as offering a limited selection of 32-bit conversions.

The 8-bit catalogue includes *Clogger, White Magic, E-Type* and the Computer Concepts ROM collection. ProAction has also announced conversions of *Zalaga* and *Frak* for RISC OS plus a version of *Zalaga* which will run under Acorn's 65Host Beeb emulator on pre-Risc PC machines.

For a bit of unashamed nostalgia, contact ProAction at 162 London Road, Romford, Essex, RM7 9EU.

Want to work for Acorn?

This has to be a great time in Acorn's history to be part of the team which is taking Acorn into exciting new realms. Acorn is growing again and it is short of qualified engineers. If you think a career with Acorn might be just the ticket, contact Lorraine Buckman, tel: 44 (01223) 725000, e-mail: lbuckman@acorn.co.uk

When is a Werewolf not a Werewlf

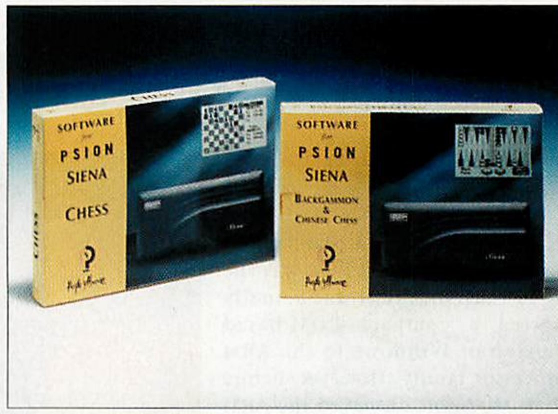
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BT/Sunday Times award for Acorn NC

The Acorn Network Computer beat off all but one of 223 entries in the best Future Concept category of the recent annual BT/Sunday Times Superhighway Awards ceremony, which was hosted by Jonathan Ross. The Acorn NC had to make do with silver behind Broadband Technologies. Of the initial 223 entries, just 17 made it to the shortlist.

Purple Software announces first Siena games



ACORN MAY not be adopting the new Psion Siena palmtop as a cheaper Pocket Book (see story below) but interest in the Acorn enthusiasts market is bound to be maintained in the Siena – especially when the necessary cables and RISC OS transfer software for the new Series 3c-based Pocket Books arrive later in the year. Instead, Siena owners will have to be content with news from the rest of the Psion community and the first 3rd party software company to announce Siena-specific games is Purple Software.

Purple has just released *Siena Chess* and *Siena Backgammon & Chines Chess*, each pack is priced £29.95 inc VAT.

Xemplar decides not to adopt Psion Siena

THE PROSPECT of an Acorn Pocket Book Junior is apparently no more. In these pages recently we speculated upon the possibility of Acorn badging the new, cheaper, Psion Siena (reviewed last month) as another model in the Acorn Pocket Book range.

Acorn's Henry Howarth confirmed that Psion's other new models, the new 1Mb and 2Mb Psion 3c would indeed be developed into new Pocket Book models, but he was more guarded about the Siena. It was Xemplar's Brendan O'Sullivan who confirmed that the Siena had no place in Acorn's or Xemplar's future plans.

Apparently, the Siena would be considered as a distraction from the mainstream Psion Series 3-based models in the Acorn Pocket Book range. Of course, with the Siena approaching half the price of its Series 3 stablemates, Xemplar would have to sell twice as many to realise the same return.

The Siena's smaller screen is a definite disadvantage but in most other respects one would reason the Siena would perform extremely well in the classroom role already assumed by the Acorn Pocket Book – and for substantially less money. Marketing 'inconvenience' seems a disappointing way of denying schools a cheaper route into palmtop computing.

Interactive multimedia boom predicted

Acorn Online Media has, by necessity, had to endure the back-burner while the Network Computer business at Acorn came to the fore. However, the guys at Online Media remain undaunted and were seen demonstrating their Web-enabled set top box at the recent TMA (Telecom Managers Association) Show in Brighton. Analysts persist in saying that the STB, along with interactive multimedia TV services, will find its market sooner or later and the latest to echo this is Ovum Ltd, which has produced a report on the very subject.

Called Interactive Multimedia Services to the Home: the Competitive Challenge, Ovum's new report values interactive multimedia services to the home at US$2.2 billion world-wide today and forecasts it will be worth more than US$73 billion by the year 2006. Ovum thinks the explosive growth of the Internet will be a major factor in the development of these interactive services.

"Interactive entertainment and information, shopping, banking and advertising are all set to flourish," said John Moroney, an Ovum senior consultant. He added, "In an increasing market, no telco, broadcaster, CATV company or service provider can afford to ignore the market for interactive services to domestic customers." Moroney balances his comments with a reminder that what the market desperately needs is a critical mass of users in order to stimulate strong growth. Today, there is no sign of this much needed critical mass.

The Internet is still mainly used for passive Web browsing and sending e-mail. Interactivity remains a minor feature of the Internet. However, all the Internet system vendors are now working hard on enhanced products which feature increased interactivity, including on-line shopping, banking, information searching, etc. Meanwhile, the STB sector has all the interactivity you could want at this stage, but just tiny trial audiences to make usé of it. Somehow the two sectors must meet and when they do, Acorn Online Media should still be there, patiently waiting for its opportunity.

Ovum Ltd, tel: 0171 255 2670, Web: http://www.ovum.com.

Psion announces Series 3 Internet compatibility

PSION CHOSE the world's biggest computer trade show, Comdex Fall, in Las Vegas to announce imminent availability of its Internet suite for the Series 3 (and by definition Acorn Pocket Book 2) palmtop range.

Scheduled to ship in December, *PsiMail Internet* is described as a complete Internet suite, including SMTP/POP3 e-mail – with UUE and MIME file attachments and HTML 2.0 web browsing. In the US at least, the package will be sold for just US$49.95 (approx £31) and will be bundled with a Compuserve Internet connection package and free membership within a dedicated Psion domain.

It's amazing what you can squeeze into just 512K of memory – the minimum memory requirement for Psion's Internet suite. The TCP/IP stack supports all the usual Internet protocols, like SLIP, PPP, IP, TCP, UDP, ICMP and DNS Name resolution. There is also support for mobile phone connectivity and Smart Phone number resolution.

The Web browser supports HTML 2.0, Forms, GIF graphics, Caching, 3 levels of zoom, mail-to, HTML page save, plus an API for extended features to be added later. These will include support for tables and other graphic formats.

Surprisingly, there hadn't yet been any UK shipping announcement of the *PsiMail Internet* package as we went to press. Even Brendan O'Sullivan, Xemplar's managing director, was not aware of the Psion Internet announcement when we asked him about it the week after Comdex. Indeed, O'Sullivan had only met with Psion to discuss future plans for the Acorn Pocket Book a few days before (see separate story). Xemplar sees the Internet as being a core technology for schools in the not too distant future.

news

A more distant relationship for Acorn and NChannel

ACORN HAS divested itself of its investment in NChannel, the company set up with backing from former Acorn boss Hermann Hauser as well as Acorn.

NChannel was originally set up as a joint venture company which would market Acorn-sourced Network Computers (NCs). Acorn is allowed, as part of its deal with Oracle, to sell products based on technology it has developed for Oracle.

Last Autumn it was beginning to look like the relationship between Acorn and NChannel wasn't developing satisfactorily. Comments critical of Acorn's ability to supply NCs on time were voiced by NChannel, even though Acorn had started manufacturing NCs in limited numbers since August. It appeared NChannel wanted a wider choice of products to sell, not just Acorn-sourced and on their part, Acorn decided – for the time being – not to embark on a major mass-production initiative.



Malcolm Bird, who heads Acorn's Network Computer division, told AU that for Acorn's part, it had been decided to concentrate on developing and licensing technology, rather than entering into manufacturing and branding at this stage. Early last December Acorn and NChannel revised their relationship and while Acorn is now no longer an investor in NChannel, it remains likely NChannel will still become a major supplier of NCs based on Acorn technology.

NChannel has become the latest licensee of NC technology from NCI (Oracle's Network Computer, Inc.), of which Acorn is a partner and will eventually commission manufacturing of its own-branded NCs.

New utilities from Purple Software

BESIDES SOME new games for the Siena (see other story), Purple Software has also announced two new utilities for the Series 3a and 3c (plus Acorn Pocket Book 2). *NotePad Deluxe* is described as an "intelligent" note-taker which integrates information on the Psion by linking jottings with word processor files, spreadsheets, databases and even picture files.



Its versatility means it has a whole range of uses, from contact manager to project tracker. The second utility, *Toolkit 2*, bundles four programs: *IconBox*, for customising the screen, *DataSafe*, for archiving and protecting data files, *SysInfo*, which expands on the built in system information option and *FileView*, which lets the user examine large text files and un-delete previously deleted database records.

***NotePad Deluxe* is priced £59.95 inc VAT, while *Toolkit 2* is priced £49.95 inc VAT. Purple Software, tel: 0171-387 7777, fax: 0171-387 1188, e-mail: 100526.3715@compuserve.com**

Ex-SEMERC staff bounce back

MARTIN LITTLER, Trish Hornsey and Roger Bates, who all left SEMERC earlier this year, were due to mark their return to the education software scene with the debut of their new company, Inclusive Technology, at BETT'97 (just after the copy deadline for this issue).

New at the show from Inclusive is expected to be a range of early learning support packs for both Microsoft Windows and Acorn machines, designed for the framework program *My World*. The company will also debut a new family of 'switch' software for special needs use, helping users understand fundamental cause and effect. Another attraction will be the CD-ROM *Science – Living and Growing*.

Inclusive Technology can be contacted on tel: 0161-832 6633, fax: 0161-843 0650.

Cue that Risc PC

NOB, the Dutch Broadcasting Corporation, has now officially adopted a Risc PC-based teleprompter as the organisation's standard solution for this application. The package was put together by X-Ample Technology and is called *CueMaster*. So next time someone fluffs their lines on a NOB broadcast, you can be sure a bit of Acorn technology had something to do with it!

X-Ample Technology, tel: +31 41 203 4433, email: xat@horizon.nl

Iota's Xemplar deal

Iota Software, who produce the excellent multimedia database family of applications called *DataPower*, agreed to appoint Xemplar sole distributor for the product to schools worldwide. At the same time, Iota will develop versions of *DataPower* for the Apple Mac platform which Xemplar also supports and also enable cross-platform file compatibility.

Iota Software, tel: (01223) 566789

STB features in Post Office of tomorrow

The Post Office, which – these days – should not be confused with the Royal Mail, has undertaken a project to visualise the post office of the future. Project Genesis, as it is called, relies heavily on computerised technologies including interactive services delivered via video servers and digital set top boxes (STBs).

Acorn was among 22 companies chosen to contribute its Online Media STB as part of a working demonstration of Project Genesis. The STB was chosen to show how the Post Office will handle home shopping orders over interactive TV services. The Post Office has been part of the Cambridge Interactive TV Trial which Acorn has been managing since 1994.

Welsh RISC OS arrives

SCHOOLS IN Wales have been treated to a couple of special initiatives from Xemplar recently. Acorn desktop computers have been supplied not just with a Welsh version of RISC OS, but also Welsh keyboards, allowing easy placing of accents on vowels.

The Welsh version of RISC OS features translations of system messages and a Welsh alphabet, which sorts letters in a different order to standard English. Xemplar has also been offering Welsh schools 'Step-Up' offers, enabling them to obtain a slightly higher specification computer for the price of the next model down.

The Welsh version of RISC OS features translations of system messages and a Welsh alphabet, which sorts letters in a different order to standard English

Brendan O'Sullivan, managing director of Xemplar Education, commented, "When the Welsh RISC OS computer was developed it created a unique link between the history and tradition of the Welsh language and the very latest in computer technology. The initiatives we have put in place increase the opportunities for Welsh schools to purchase a truly Welsh language computer and, through the Step-Up offer, to upgrade to a higher specification system for free. Both schemes reiterate our commitment to Welsh educational IT."

Meurig Williams, Director of MEU Cymru at the Welsh Joint Education Committee, commented: "MEU Cymru is very proud to have produced the Welsh face for Acorn computers. At a time when many minority languages and cultures are under threat, it is important to remind computer users in Welsh schools that the language is not confined to the chapel pulpit and to eisteddfodau. Welsh is a living language that has no difficulty in coping with all the complexity of modern technology."

Torwyn Tomos, headteacher of St. Dogmael's primary school, Pembrokeshire, said, "The schemes announced by Xemplar are a very positive step forward for IT in Wales. For those Welsh speakers brought up on English and American language computers, a computer operating entirely in the Welsh language provides a major injection of confidence."

A further plus point is that Welsh RISC OS computers are being supplied at no premium cost over 'ordinary' versions.

Sun officially to support Java on ARM

SUN MICROSYSTEMS has announced it is officially to support Java on the ARM processor. Java, a derivative of C++, was invented by Sun to be the computer language of the Internet. That makes Java a very valuable property. Applications written in Java are independent of the hardware they are loaded into and executed from. Other Java developments include Sun's JavaOS – a complete operating system designed for running applications written in Java.

However, you won't see JavaOS on an Acorn-designed Network Computer as it is effectively an alternative to the Acorn NC RISC OS-based operating system. Separately, Netscape (best known for its Navigator browser and Internet server products) then developed JavaScript, a scripting and control language for doing dynamic things via your Internet browser.

Up to now, Sun has only officially provided support for developers wanting to provide native support for Java on platforms using chips like Intel's x86 (PC) and Sun's own Sparc processors. With ARM-based products currently dominating the list of available Network Computer products, it was only a matter of time before Sun decided to add ARM to its supported list of processors.

It would also be a sensible guess that Sun has already been providing support for at least one ARM developer, Digital Equipment, behind the scenes. Digital recently completed its port of JavaOS to the StrongARM processor which it developed under licence from ARM, a task you'd be hard pressed to accomplish without help from Sun.

As if to underline the credibility of the ARM and Java combination, Digital's JavaOS port to StrongARM had enabled Digital to run Java benchmark applications faster than anyone else to date – including Sun. However, the future of Java as a popular non platform-specific application language for the Internet is far more important than Sun's ego. If Java can be promoted because it runs brilliantly on a non-Sun chip, that's fine for Sun and Java.

Acorn deals with Cirrus Logic

ACORN HAS signed a deal with chip company Cirrus Logic to provide a reference design kit which will make it easier for third party companies, or OEMs (own equipment manufacturers) to develop Internet appliances using Acorn and Cirrus technologies.

The two companies expect to be involved in the development of screen phones, portable Internet appliances (PIAs), multimedia kiosks, Web browsers for TVs and Internet terminals.

Acorn will contribute RISC OS as the operating system and ancillary software, which includes a Web browser, e-mail client and word processor. Meanwhile, Cirrus provides its WebSet chip-set which incorporates a modem section, Ethernet networking section and an embedded ARM 7500 processor. There is also hardware support for CD-DACs, SVGA CRT and LCD monitors, EDO RAM, audio and a PC-style ISA bus.

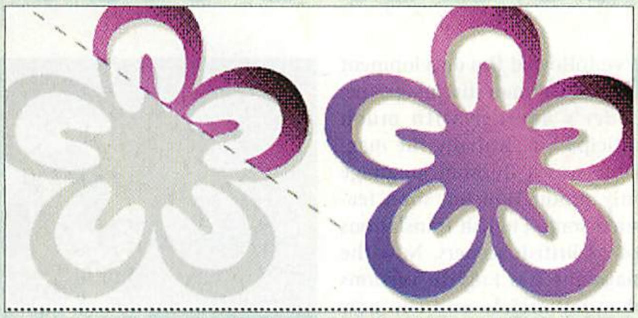
A key attraction of the Acorn/Cirrus package is that it incorporates clever technology to make cheap displays look their best. This includes a flicker-filter (anti-twitter) solution and, of course, anti-aliasing of fonts.

Peter Bondar, director of Acorn Risc Technologies (ART), commented, "Acorn and Cirrus are already partners of Oracle's Network Computer, Inc. (NCI) and this agreement marks another step forward in the network computing vision, complementary to the work we are already doing with NCI." He added, "For those OEMs looking for network computers, Acorn can provide a complete solution with NCI based on Cirrus chips. For those wanting other Internet appliances, where this approach is not appropriate, Cirrus and Acorn can offer a completely tailored service."

The reference design kit is available immediately from Cirrus Logic. The RISC OS Licence is obtainable from Acorn. If the reference design kit proves popular, it will further help Acorn's prospects as a major contributor in the Internet appliance market. Already there are signs Acorn is making good progress. For example, although we can't confirm if Acorn was instrumental in this particular deal, it is rumoured that Phillips has decided to adopt ARM-based technology for its next-generation Web TV. Phillips has only just launched its first-generation Web TV product, which is based on MIPS processors.

Dissecting the latest ArtWorks plugins

THE ACORN platform is renowned for the quality of its best public domain. In the good old days, when the biggest software companies had just about as many hands as a Demo group, the relative standard of Shareware and Freeware was better than today. However, the latest plugins by Martin Würthner for *ArtWorks* are simply superb.



The Intersect tool, which is sent free when you register ownership of Polygon is very useful

One of the reasons I don't use Acorns for some of my vector graphics is the lack of an intersecting tool. It's very time consuming taking chunks out of objects by adding points, breaking shapes and moulding outlines to fit the shape of the cut out. It's enough to drive a sane person to PCs, where packages like *CorelXara* do the hard work for you.

The new *Intersection* tool comes free when you register the Shareware module *Polygon*. *Polygon* is another commonly used creative tool absent in *ArtWorks* – it is very simple to use and enables the quick generation of non-stellated and stellated shapes.

Both tools appear on the *ArtWorks* tool bar after the simple installation procedure, which simply involves dragging the module into the modules directory. From then, the new tools are self explanatory – in keeping with the style guidelines of the application.

If only someone clever (very clever) out there could write a module for transparency, multi-graduated and bitmap fills, even a bitmap tracer. Many readers are convinced there will be numerous buyers who must concede that presently, vector graphics on the Acorn are not quite up to the competition.

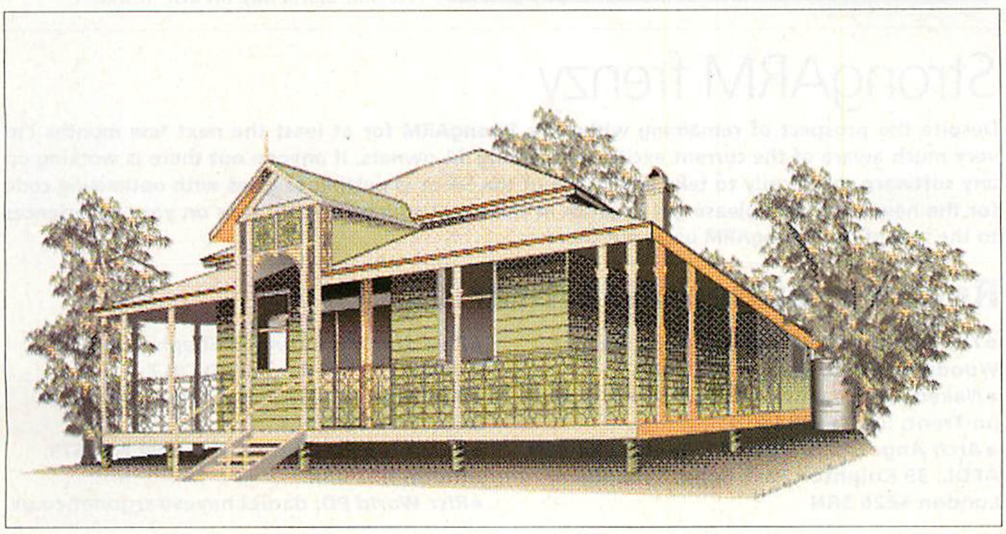
The author's e-mail is wuerthne@minnie.informatik.uni-stuttgart.de. *Polygon* is available from Hensa FTP site.



Picture of the month

THIS MONTH'S Pic winner is John Carne from Australia. The last person to contact me from down under was our old editor Mark Moxon, who fondly described very much the same kind of architecture as pictured below.

The GIF bitmap was originally produced in *ArtWorks* and the perfection of perspective and detail of the trees and the fencing are excellent. So £20 makes its long trip to Australia, where I'm sure it will be converted into well deserved dollars.



ImageFS2 the latest version

ImageFS version 2.30 is not a major upgrade from the last version reviewed, but everything in the pipeline is now fully functional and new developments are emerging.

ImageFS is the smartest and most comprehensive of all commercial image translation software. Though many bitmap packages can read and write foreign file formats, none can do what *ImageFS* does. It actually tricks Sprites-only software into thinking Sprites are being sent to them when the files could be anything from Sun Workstation to Psion 3a bitmaps.

The first of many planned vector graphics translators is included. This allows Windows Metafiles to jump straight into *Draw* or *ArtWorks* without the bother of Postscript.

It would be wonderful if DTP and 3D graphics formats were also supported, as the front end and speed of *ImageFS* is second to none. There is even multithreading for the lovely preview facility, Universal Image, producing a gallery of thumbnails from any supported file which can then be dragged and dropped into any RISC OS art package. *ImageFS* would be a good candidate for a universal file transfer software.

Alternative Publishing, tel: 0141-418 0880

Gnat Art collections

Angela Bradley has produced a very specialised collection of educational Clip Art on the theme of Asia. Animals, art, instruments, symbols, icons and peoples of the Indian subcontinent and surrounding region are supplied in black and white as well as colour. This simple package also comes with printouts of the contents.

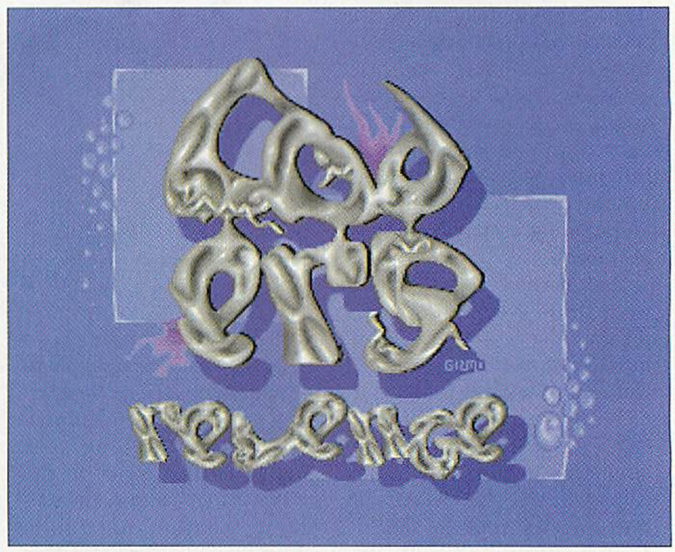
Angela Bradley, tel: (01905) 452501

Contacting me

You can contact the graphics and DTP page by writing to me, Jack Kreindler at *Acorn User*, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to augrafix@idg.co.uk

Coder's Revenge 6

I've followed the development of the German disc magazine, *Coder's Revenge* with much anticipation. Initially the magazine was a German language only production but soon featured some English translations for us British sceners. Now the magazine has English versions of every article and the new issue is excellent.



Disc magazines have always had a difficult time on the Acorn scene, with many failing to receive enough reader support and the authors moving on to other things. *Coder's Revenge* is now in its sixth issue and is still growing in stature at a time when the coding scene is going through something of a revival.

The magazine software is just about right, with a multi-tasking version for RISC OS diehards and a single-tasking mode for that proper disc mag scene feel (which I prefer). Each issue has some new music and a little contributed demo effect, but all this has been seen before, so what makes the *'Revenge* any different?

It is put together by one of the best groups on the scene, Archiologics, and it shows. All the latest news and scene reports are there, including a big report on the recent Yelling Jam party as well as reports of two other non-Acorn parties. The main articles section features a range of coding hints and tips with source code supplied for all those budding coders out there. On top of this, there is a range of extra files including all the entries to the 1K coding competition – the winning entry from Topix is amazing!



As I've mentioned above, reader support is essential to keep a disc magazine going, so please get involved and write an article or fill in a votesheet from the magazine. This is definitely a magazine to be supported. *Coders Revenge* issue 6 is available from the Acorn Demo site on the web at: http://sidonie.imag.fr/AcornDemos or from Five Star Marketing on disc MAG4.

StrongARM frenzy

Despite the prospect of remaining without a StrongARM for at least the next few months I'm very much aware of the current excitement among SA owners. If anyone out there is working on any software specifically to take advantage of the SA or is getting to grips with optimising code for the new processor, please get in touch at the usual address and I'll pass on your experiences to the rest of the StrongARM users out there.

Recommended PD Libraries

- ***The Datafile*, Willoughby House, 89 Woodville Road, Boston PE21 8BB**
- ***Naked PD*, 'Fayence', Fulford Road, Stoke-on-Trent, Staffs ST11 9QT**
- ***Arch Angel PD*, PO Box 41, Exeter EX4 3EN**
- **APDL, 39 Knighton Park Road, Sydenham, London SE26 5RN**
- ***Five Star Marketing*, 4 Shepherds Walk, Bushey, Hertfordshire WD2 1LZ**
- ***Beebware PD*, 83 Forrest Road, Huncote, Leicester LE9 3BH**
- ***ARM Club PD Library*, Freepost ND6573, London N12 0BR**
- ***Risc World PD*, daniel.hayes@argonet.co.uk**

Converter

Converter is a rather handy measurements translation program that can sort inches from centimetres or stones from kilograms, at a click of the mouse. *Converter* is on the October subs disc from APDL.

Raj PD

At Acorn World, one of the show regulars, Robin Jubber handed me a couple of discs of his latest PD and what an eclectic collection of programs they comprised. Robin has put together a whole range of code from games to handy desktop utilities. Unfortunately there are too many to go into detail about but suffice to say they are well worth checking out on a range of utilities discs from the Datafile.

A tiny program which deserves a particular mention *Slowptr*. Despite being filed under desktop sillies, this is an invaluable tool for artists and desktop publishers. One problem with having a fast mouse setting is the lack of accuracy when editing graphics or drawing freehand. *Slowptr* knocks down the mouse speed when the Select and Adjust buttons are pressed together.

VRHand

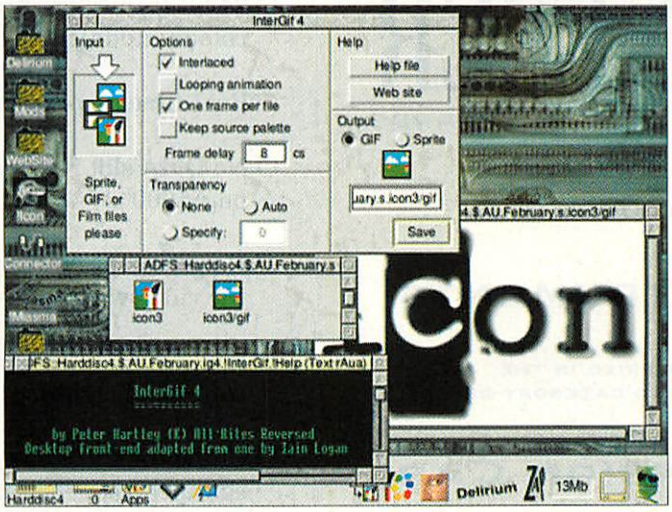
VRHand is a little 3D program that shows a working hand in vector graphics. You can move the hand around with rotation and zooming controls, and manipulate the fingers and thumb using the keyboard. Unfortunately the author did not include any details about the program but hopefully the next version will feature a whole 3D world to explore. *VRHand* is available from the demos area of Arctic BBS.

Colony update

Work is progressing well with Anthony Sims' PD strategy game, *Colony*. Anthony is working with a team of playtesters to develop the game to be as playable as possible, and the latest feedback comprised requests to incorporate a hi-res version. Unfortunately there's still a lot of work to go, including the development of the computer player AI, but Colony looks set to be one of the classic PD releases of 97. More news soon.

InterGif

Following on from my review of *WebGif2*, I know at least one reader was disappointed by the fact that I had praised it so highly even though it failed to support 2,4 and 16 colour definable palettes. Despite the advantages of using command line utilities that support these features, I still found *WebGif2* to be very useful – especially when converting large numbers of sprites to gif files, at speed. Fortunately, Peter Hartley has released an even better solution that might just keep everyone happy.



InterGif is yet another sprite-to-gif conversion program, but provides a range of very handy features not yet included in any other easy-to-use RISC OS software. The program works entirely from one window. Simply select the required options in the middle of the window (which includes producing ordinary or interlaced gifs) and drop the sprite to be converted onto the input box. *InterGif* does all the work, leaving you to drag the output gif to a directory. The two main advantages of *InterGif* over rivals are its ability to produce 2,4 or 16 colour gifs automatically (saving valuable Web space and download time) and even to create animations.

InterGif accepts sprite files with more than one sprite. It will convert these to animated gif files that are supported by the latest Web browsers like *Fresco* or *Netscape*. Full control is given over the frame delay and the looping method, and *InterGif* will even accept *Animator* files as input.

Some rather nifty compression routines are used to minimise the final size of animated gifs. The author even reports dramatic size reductions in existing animations on the Web that have been re-compressed with *InterGif*.

If you're involved in producing any kind of Web pages, *InterGif* is an invaluable addition to your software collection. The latest version is available from Peter's Web page at: http://www.ant.co.uk/~peter/software/intergif.htm

Cal

Diary programs are fairly commonplace in the PD scene, and while I don't normally like to cover old ground when there are plenty of new programs to review, the elegant simplicity of *Cal* caught my eye. Author, Ian Palmer, has designed the program around a basic calendar window which shows each day in the current month as a little icon.

Clicking Select on one of these icons opens the entry for that day for viewing. Alternatively a click of Adjust opens the create event window which allows the addition of events to the diary. As well as general events, business trips, appointments, holidays or anniversaries can be added.

Although *Cal* isn't as advanced as some diary programs it's very easy to use and has all the really important features that save time. A configuration window gives control of all the main options and the handy auto save feature updates information to a save file inside the application, as you go. Well thought out command line options let you tailor the program to your exact needs. It can be set to open up today's diary entry when the machine is turned on or even compile and display a list of events for the next week.

Cal is Freeware and is on the (slightly late) October 96 subscription disc from APDL. While I get the chance, I'd just like to recommend David's subs discs which offer an ideal way for users to get the latest in up-to-date PD. They are also part of the excellent incentive scheme for PD authors who contribute to APDL. Contact APDL at: 39 Knighton Park Road, London, SE26 5RN.

Connector updates

Version 0.91 of *Connector*, the Freeware terminal emulator program by Andreas Zieringer is now available from Arcade BBS and the HENSA ftp site. Changes include a range of minor bug fixes in the file transfer code.

Contacting me

You can contact the PD page by writing to me, Paul Wheatley, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield, SK10 4NP. Or preferably, by e-mail to aupdpage@idg.co.uk

Graphic

The latest news from Alexander Smith on his computer to Casio calculator software, *Graphic*, is that work is progressing quite speedily. Unfortunately Alex is having problems checking the compatibility of the software with calculators other than his Casio fx-7700GB. So if you've got one of the newer models and would like to help out, please get in touch with Alex by e-mail at: alex-smith@enterprise.net Alex's new Web pages which contain a copy of *Graphic* can be accessed at: http://homepages.enterprise.net/alexsmith

Desktop Companion

Desktop Companion is a compendium of desktop utilities that have been coded and packaged up by Andrew Timmins of Worth The Risc software. The companion is PD and has everything from sound and music support to disc, system and comms utilities. *Desktop Companion* can be found in the file area of the Digital Databank BBS.

Crunch

The excellent *Crunch* compaction tool that has been mentioned on these pages several times before has recently been the cause of a range of StrongARM incompatibility problems. Crunch can be used to compress program code or relocatable modules like the QTM music player. Programs previously compressed in this way will not work on the SA and need to be uncrunched back to their original state.

Fortunately however, the author of *Crunch*, Bernard Jungen, has updated the decompaction code to be compatible with the SA. Version 1.21 is available direct from Bernard's Web site at: http://gate-fun.cediti.be/~bju/myprogs.html

For users experiencing problems with programs that have been compressed with the old versions, issue six of the Coders Revenge disc magazine includes a module that deals with the problem automatically.

comms

Travels with my A4

THERE'S no doubt that Acorn makes machines that represent the forefront of British computing technology and innovation, but Acorn users are spread right across the world. During a recent holiday, my Acorn A4 portable and I found ourselves in Hong Kong and one place we visited was the Jockey Club Sarah Roe Centre, professional support centre of the English Schools' Foundation at Tin Kwong Road, Kowloon.

In 1994 I was asked by the Head of the Centre, Chris Smith, to help develop their Bulletin Board system, *Shambles BBS*. Set up to support ESF teachers and staff, Shambles BBS had been running *ARCbbs* software on an A5000 with four ports on an Econet network and three dial-in lines using US Robotics *Courier* V32 turbo modems, one of these being a FidoNet port.

On my visit I was able to help Chris upgrade the Shambles BBS installation to a Risc PC 700 with five ports accessible to the Centre's new Ethernet 10base-T network, and upgrade the three US Robotics modems to V34+ 33,600 bps operation. My A4 and I developed and installed an *ARCbbs Door* program to allow Shambles BBS users to browse and search an extract from the Centre's extensive book library database, part of their *School Information and Management System (SIMS)* running on a PC.

One evening Chris showed me round some of his favourite haunts in the Hong Kong Island area of Wanchai, packed with restaurants, bars and clubs, and what actually happened there is probably 'beyond the scope of this article''!

Another visit was to Beacon Hill School, also in Kowloon, where I was able to help Information Technology (and football!) teacher Keith Purton expand his single-line *Primary BBS* system, designed to introduce primary school students to IT, to a 'world-record' 16-port Ethernet LAN and modem access *ARCbbs* system running on a StrongARM Risc PC.

Keith's main ambition was to achieve full Internet access for the school's network, to give every pupil in school a unique e-mail address and allow class-wide controlled Web browsing on the 16 networked Risc PCs in the computer centre and six classroom A5000s. Almost coincidentally timed with my visit to Beacon Hill School was the installation of a 64-Kbit leased line to Asia Online, one of the local Internet Service Providers. AOL also supplied the line-terminating equipment and a Router to connect it to the local Ethernet network.

Asia Online is very helpful and keen to get HK schools connected, offering technical support and very good terms for this experimental project. A temporary 'local' domain name of beaconhill.edu.hk was set up for us and we were given a batch of 60 IP addresses.

Some time was spent experimenting with various software packages and I'm glad to say that in the end we did completely achieve Keith's ambition using a combination of networking software.

Each networked machine runs the *ANT Internet Suite* for full Internet connection, while able to see the rest of the local network via *Acorn Access*, and *ANT Fresco®* is used as the Network's controlled Web browser. The StrongARM Risc PC that runs *Primary BBS* also functions as the domain's SMTP Mail Server, running the Acorn *InterTalk !Mail* program to send and receive e-mail addressed to recipients on the beaconhill.edu.hk domain.

!Mail is designed specifically for network use and allows pupils to read and write e-mail from any machine on the local network. Keith tells me that he's now got 180 children in the school of only nine and ten years old sending and receiving e-mail all over the world.

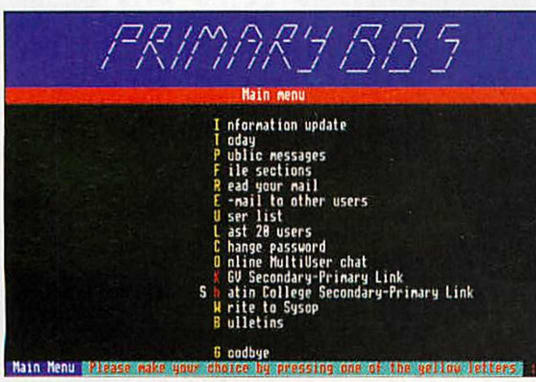


Starting them young at Sha tin College – photo courtesy of Chris Smith

Finally, we gave *Primary BBS* full Internet access using Hugo Fiennes' PD *!TelnetIn* program so that it was accessible by all the machines on the school network and from outside.

On the last day of my visit Chris took me to the Golden Computer Centre in Sham Shui Po, an indoor arcade of tiny shops on three floors where you can pick up amazing bargains – computers, software and accessories. I couldn't resist the temptation to buy a 16Mb SIMM for my Risc PC for HK$580, which is about £44. Did it actually work when I got it home? Yes.

When the beaconhill.edu.hk domain name is fully registered, *Primary BBS* may become one of the first permanently accessible Acorn Bulletin Boards on the Internet. If only *Arcade BBS* could get a sponsored UK leased line to Demon...



Primary BBS introduces IT skills

Get labelled

Registering for a new StrongARM Risc PC door label isn't the only good reason to check out the web site of Andrew Conroy and his sister Jude. Andrew is a primary school teacher living in Mansfield, Notts and a programmer whose efforts are downloadable from the site. Jude's X-Files links page may help you find the truth out there, and if you've a pound to spare, a genuine original Keith Parker vinyl StrongARM door label could be yours.

http://www.argonet.co.uk/users/a.m.conroy/

Seven go on the Web

Software7 is a group of computer enthusiasts aged between 14 and 27 who develop software for Acorn RISC OS and IBM compatible PCs. The group was formed in 1994 by Gareth Edmondson and Pete Cathcart and now consists of about 30 programmers, musicians and artists.

Gareth's Software7 Web site has graphics by John Cameron and contains details of current and future projects, with software to download as well as their electronic bi-monthly disc and online magazine *RiscMag*.

http://wkweb1.cableinet.co.uk/liquid/soft7/

Webbed Wirral

The Web site of ICS (Ian Copestake Ltd) lists nearly 3,000 Acorn products and prices, with details of special offers and promotions by Acorn and other suppliers. Ian points out that his Web price list is more up-to-date than any magazine advert or printed list could be, and you can order straight from the pages or by mail or fax. A form allows customers to register their details to speed up and secure subsequent electronic ordering.

http://www.ianco.demon.co.uk
http://www.ianco.co.uk

Contacting me

You can contact me, David Dade, at the usual *Acorn User* address and keep sending me interesting URLs for the next yoUR List by e-mail to david@arcade.demon.co.uk, or mail #2 on Arcade BBS 0181-654 2212.

ESP MIDI synthesiser

IF YOU have a 'real' multimedia PC these days, the chances are your sound card would, or could, support a fairly cheap and simple midi synthesiser upgrade such as the Soundblaster AWE wavetable card. That being so, increasing amounts of software have the ability to send midi codes to enhance the sonic background of games in particular. But since we're concerned with Risc PCs here, you may well be wondering how you can get to hear this. The answer is: more easily and less expensively than you might think.

ESP developed its midi synth as a cost effective way of implementing midi sounds on an RPC with 16-bit sound (ie a RPC 700 or a 600 with a sound card), but it works just as well from Windows. I've recently been playing with it and found setting up very simple. Simply load the software onto the icon bar as if using it on RISC OS (this must be done first as Windows may not notice it's there), then start up the card and Windows. Provided the drivers are installed correctly, Windows programs should now have access to MIDI.

The only problem I found was believing it was working! That may sound daft but the process was so simple I mistrusted it. Then I couldn't get *Encarta* to play anything that was obviously MIDI – I'm told the national anthems are stored as MIDI files but I can't find them! – and I didn't have any pure MIDI files to play using the media player MIDI facility.

However it was working all along. The MIDI files supplied by ESP for use under RISC OS can be copied into a DOS directory and played from there – just rename them with the .MID extension so DOS knows they are MIDI files. Bingo – they played perfectly. I still don't know where *Encarta* hides its MIDI files but other software accesses MIDI without difficulty.

Sadly there are some flies in the ointment. The first is that access to MIDI from DOS isn't guaranteed. DOS software is always tricky on PC cards anyway and perhaps expecting MIDI to work is being a touch optimistic. But not all is lost – ESP tell me they are looking into this and a solution is being sought. The ideal answer would be a patch for *!PC* that would sort all the problems out in one go. In reality, given the plethora of ways in which DOS software addresses its hardware, this isn't practical and it is more likely that ESP will have to write patches for individual programs. I'll be keeping in touch with developments.

The second fly is a little less tractable – synthesising MIDI output in real time isn't exactly trivial so it places a significant load on the RISC processor. In turn that leads to further delays in servicing the PC card – hence graphics and responses are slowed down. I presume the StrongARM chip would help here – but I don't have one yet so I couldn't say for sure. Perhaps some kind reader with an SA inside would let me know?

That aside, the ESP synthesiser is an impressive piece of software that does its job very well. Simply playing MIDI from Windows works superbly and I have to say the quality of the music output is excellent. Given that the sound is being synthesised in software from a library of stored instruments this is impressive stuff. The cost isn't excessive by any means and you get a piece of software that is fully functional under RISC OS too.

ESP: Tel: 0115-944 4140, fax: 0115-944 4150

WinRisc aids Acorn-to-PC integration

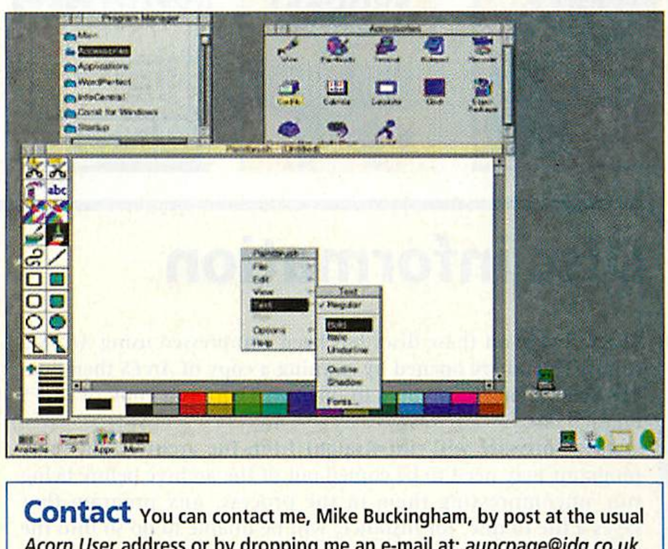
IF YOU were at Acorn World and visited the ARMed Forces stand, you would have seen something to make you rub your eyes in a certain amount of disbelief. *WinRisc* is a nifty program that increases the level of integration between the RISC OS side of our machines and the PC card. It works in multitasking mode where the PC card activities appear in windows within RISC OS. The software takes control of how the windows look and operate. Although the icons look like those shown in Windows, their surroundings metamorphose into familiar RISC OS style. But that's not all. Files may be dragged and dropped across platforms and menus are rendered in familiar RISC OS format too.

The software on show looked very impressive and were I using Windows 3.1 I'd have no hesitation in installing it. But – there's always a but isn't there – there are problems with Windows 95. To begin with *WinRisc* doesn't yet fully support Win95 though that should have changed by the time you read this. Perhaps more importantly, Win 95 is slower anyway and in multitasking mode it crawls even with a fast PC card.

Trying to use it within *WinRisc* isn't likely to be too impressive despite the potential advantages. For a moment I was certainly tempted to drop Win95 in favour of a *WinRisc*/3.1 installation, but the temptation lasted only as long as it took me to tally up all those titles that are Win95 only.

So, if you are a Win 3.1 user, *WinRisc* is excellent news and should be on your wish list. Given its price, it could prove a very worthwhile addition to your machine especially if you transfer files between RISC OS and DOS/Windows on a regular basis. If Win 95 oriented, you might well consider whether to default to Win 3.1 with *WinRisc* – the problem being whether your pile of expensive software will still run on 3.1. If it will, the extra speed and functionality afforded by the 3.1/*WinRisc* combination could be very attractive. Sadly if like me you have expensive software that is Win95 only – *WinRisc* isn't likely to add enough to justify the cost of changing all those programs.

ARMed Forces: tel: (01962) 880591, fax: (01962) 880003.



'N' interface possibility

IN A previous issue of *Acorn User* I noticed a review by Mike Cook of Stuart Tyrrell's *N Interface* – a device that allows Nintendo joypads to be used for games under RISC OS. I rang Stuart and asked him about prospects for using the N Interface with the PC card. He told me it is possible to use it with the card in conjunction with *PCJoy* (which can be found on Aleph's Web site). He also said he's been working on his own driver which should be available from him by the time you read this. But that's not all, Stuart has another solution under development and has promised to let me try it soon. So watch this space!

Stuart Tyrrell Develepements is at PO Box 183, Oldham. OL2 8FB. His Web site is at http://www.stdevel.demon.co.uk

Contact You can contact me, Mike Buckingham, by post at the usual *Acorn User* address or by dropping me an e-mail at: *aupcpage@idg.co.uk*

Voyager: Get connected



If you're not connected to the Internet, or you're thinking of changing your Service Provider, check out this version of Voyager and a trial account from Argonet.

This program will allow you to try out the Argonet Voyager software and Argonet Internet connection. You will be asked for further payment details but there will be no charge if you inform us that you do not wish to continue to use the service after the free month. Any questions concerning this offer, please call (01243) 815815.

ARGO THE INTERNET EXPERTS

What to do

Check you have a suitable machine:
4Mb of RAM
RISC OS 3.10 or later
6Mb of hard disc space
Hayes-compatible modem
Then:

• Make sure your modem and telephone cables are connected.
• Drag the !Voyager application onto your hard disc.
• Run the !Voyager program from the hard drive.
• Follow the on-screen instructions to register your details.
• After registration, you will need to connect to the internet. The software defaults to SLIP-type connection, however, if you experience difficulties during the connection stage, select PPP connection instead.

You may find that you have to wait 24 hours before your account is created, a message will appear on screen informing you if this does happen.

Voyager

• An Auto-Upgrade window will appear on the screen — select 'Download' You will now automatically collect the full version of the Voyager suite.

This stage will take some time to complete:
28.8 modem (new) approx 10 mins
14.4 modem (new) approx 15 mins
28.8 modem (old) approx 40 mins
14.4 modem (old) approx 40 mins

Old refers to A3x0, A4x0, A540, A30x0, A40x0, A5000 and A4 types and *New* machine refers to A7000/RISC PC types)
• After the green download status bar disappears, click on 'Disconnect'
• Quit !Voyager and watch it update automatically to the latest version.
• After the update is complete, reset the machine
• You are now ready to use !Voyager

Any problems during the installation, please call Argo Technical on (01243) 815800. There is an electronic manual built into Voyager — you can access this off-line using the web browser. Simply click on the Web (globe) icon and select *Voyager Manual*. A paper manual will be posted to you if you continue to use the service after the free trial.

The Voyager software suite costs £59 in VAT. You will not be charged for the software during the free trial period.

We hope you enjoy your free trial on the Internet.









Disc information

The software on these discs has been compressed using *ArcFS 2* from VTi, and are opened by running a copy of *ArcFS* then double-clicking on the archive to open it. There is a copy of *ArcFS* on each disc.

Most software will run straight from the archive, but some programs may need to be copied out of the archive before being run, uncompressing them in the process. Any program that saves a file to disc, for instance, will be unable to do so into the archives on the disc.

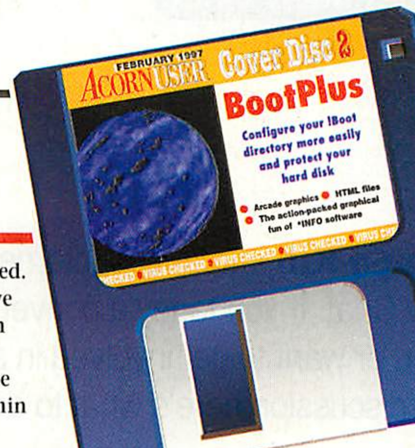
Faulty disc?

If your disc is faulty, test whether it will verify by clicking with Menu on the floppy drive icon and choosing Verify.

If it fails to verify or is physically damaged you should return it to *TIB, TIB House, 11 Edward Street, Bradford, Yorkshire BD4 7BH.*

If it verifies successfully return it to the *Acorn User* editorial office at the usual address.

The *Acorn User* cover discs have been checked for viruses using *Killer* version 2.500 from Pineapple Software.



!BootPlus

Malcom Ripley

The original reason for developing this program was to allow a much easier way of customising the !Boot sequence of events. Why Acorn omitted to include this as an option of the configuration I don't know. Editing files embedded in the !Boot application is nearly as bad as editing CONFIG.SYS or AUTOEXEC.BAT files on the PC.

At the same time as developing this program some of the files in some directories become corrupt due to the lack of knowledge on the part of my son and friends. Investigation of the existing Acorn provided password protection showed it to be too restrictive for normal use. So I decided to expand the program to include password protection via user accounts.

This application actually consists of four separate programs:

!Bootplus
!zzzzpass
!zzzzchk
!Trap

!Bootplus is the main application which is used to set up and manage the system.

!zzzzpass is a hidden background task that checks for user login and monitors certain aspects of the system as defined by !Bootplus. If *!zzzzchk* is not running *!zzzzpass* starts it. *!zzzzpass* will also re-start *!zzzzchk* if attempts are made to quit it.

!zzzzchk monitors that *!zzzzpass* is running and starts it if that is not the case.

!Trap(s) are very small applications that can be liberally spread around the hard disk. They ensure that all aspects of the password protection procedures are correctly defined and if not then they will force *!zzzzpass* to "think" someone is hacking the system.

The system has been designed to behave as an on request password protection scheme rather than an on demand scheme. In this way an unwary user (hacker, thief etc) will be unaware that a password is required to access the system.

However, the system will allow a limited time to enter the password during which time the system is potentially open. As long as this time is kept short it is unlikely that much harm will be done especially since any access allowed by *!zzzzpass* to an unknown user is extremely limited. Anyway, any determined hacker can still get round any system if they try long enough. The password system once activated ensures that it is always activated. In other words any attempt to remove the password protection will result in the protection system crashing the machine. The only way to remove the protection system safely is from within !Bootplus as the user OWNER.

Installation

We recommend you read through the manual and the BootPlus help file thoroughly before installing the program, to avoid unpleasantness.

!BootPlus is installed by copying it from the distribution media to your required location. This is done by clicking on the *!BootPlus* icon and dragging it from the distribution media to the required directory. The application is then run as normal by double-clicking it.

!BootPlus can be stored in the Apps folder where it will automatically appear in the resources directory as part of the normal RISC OS 3.5 *!Boot* functionality. However, *!BootPlus* is not strictly an "application" that you would use regularly more of a utility that you occasionally use. Therefore, it is recommended that !Bootplus is stored in the Utilities directory and you use !Bootplus to install itself in the *Resources.$.Apps* folder.

Installation of *!zzzzpass*, the background password and monitor program, is done via !Bootplus. Installation of *!zzzzchk* is done automatically when required.

Installation of *!Thieftrap*(s) is also done via *!Bootplus*.

Please be aware that in the Resources directory is the master *!Thieftrap* application. If this directory is opened then this thieftrap will behave normally by ensuring that *!zzzzpass* is running and installed. This could be a problem if you have not read the manual on how to use *!Bootplus* yet since your machine will crash if a user is not logged on in time...So curb your curiosity for now.

Boot editing

The sections of *!Boot* that can be edited by *!Bootplus* are:

- Auto-run files and applications located in the Tasks directory.
- Auto-booted applications, listed in the PreDesktop file
- Additional resource applications listed in the Desktop file.
- Files located in the PreDesk directory.

The editing of all these options is done via a common window. A scrolling list displays all the current files, the type of file and some additional details. A new file/application is simply added to the list by dragging and dropping the relevant icon. An entry is removed by double-clicking on it.

All new entries are highlighted in green text and changes will only be applied when the Apply button is pressed.

The original list can be restored by pressing the re-scan button. In some instances an original file may be missing or have moved and in this case the entry will be highlighted in red.

There are some files that are recognised as being "standard" and are shown in grey. These cannot be removed by *!BootPlus*.

Auto Run

A file in the tasks directory is auto run as part of the machine !Boot sequence. All applications added to this list are done via an alias and are labelled as such in the above list.

It is possible to put an original application in the Tasks directory (not by Bootplus) in which case this will be labelled as an original application. This is not a recommended practice.

The additional information for all files is *Filer_Run since this is how boot handles them.

Auto-boot

This only applies to applications and any attempt to drop other file types into the list will result in an error message being displayed. The list of applications is stored in the PreDeskTop file.

!BootPlus can only handle the editing of autobooted applications that have been set via the program itself.

PreDesk files

Files added to this directory are interpreted in different ways during boot up. The main use for files here is for set-up procedures, for example defining your set of Wimp icons. The additional information shown for these files describes how they are interpreted by the boot sequence.

Regular items

- Bucketloads of *INFO from graphics to games
- Mike Cook's serial port testing software

Great Extras

- The voluminous graphics from the Hive game, follow the instructions from last month to compile and use them.
- Sample HTML form for David Matthewman's series

Chatter

Simon Kiff introduces Internet Relay Chat. If you fancy a conversation or want to get involved in a heated discussion here's what to do

Most people who use the Internet are aware of the World Wide Web, Electronic mail, Usenet News and little else. They often do not realise that many other services are available which are just as useful and just as fun. One such service is Internet Relay Chat (IRC).

History of IRC

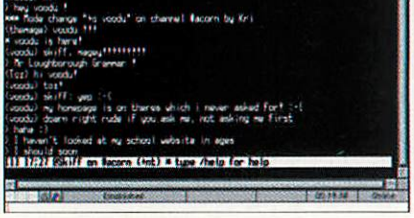
IRC evolved in the early days when the Internet was still the realm of techno-wizards. It allowed users around the world to communicate with each other in real time. Unlike e-mail, which can take several minutes (even hours) to arrive at its destination, in real time, the line of text you enter is sent instantly to other users around the world.

As the 'chat' in its name implies, it allows users to have a conversation directly with each other. The original aim of IRC was to allow conferences to take place between two or more people around the world without the need for expensive and, at the time, rare video conferencing equipment.

With the advent of service providers and Internet software suites aimed at the home novice, the Internet has been opened up to consumers so that IRC is no longer just for computer literates to chat about technical problems nor for firms to discuss marketing issues. Instead it has become a service which allows ordinary people around the world to chat to each other in a friendly environment. Where else can you join a lively debate about football with people from France, the UK, Germany and Holland!

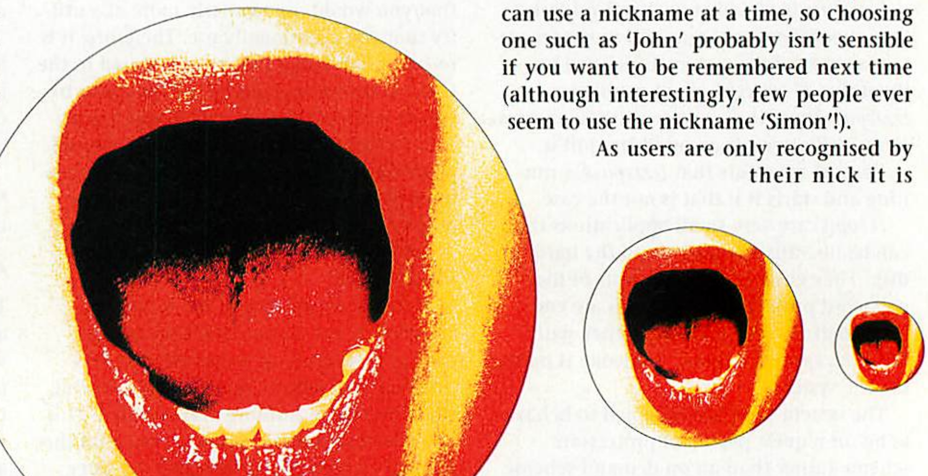
Acorn users getting involved

How does this affect Acorn users? IRC is a facility which is available to everyone



already connected to the Internet. Most Internet suites provide a telnet facility which is a terminal system similar to that used on many bulletin boards. One way to use IRC is to telnet to an IRC server connected to the IRC network, such as Demon Internet's server 'dismayl'. The address used is irc-client.demon.co.uk, and the port number is 23. Once connected you must select a nickname, and a terminal type – 'vt100'. There are many other IRC servers around the world.

An easier way to connect is to use a piece of software called an IRC client. This makes IRC far more accessible to home users. Simply connect to the Internet, load the client software, click on the icon and



it connects to a server for you. There is currently only one client available for RISC OS – *IRClient* by Matthew Godbolt.

This program has been around for some time, and now sports some impressive features. It is available as 'studentware' from Matthew's Web site and works with most of the RISC OS Internet software such as ANT, Acornet, Freenet and Argonet. Currently it does not work with Termite but Doggysoft is working on this.

Also under development is iXRC another client by new RISC OS software company, QuadWorks. This is a commercial package due to retail at £15. A review copy of the software I saw before launch really shows the immense effort QuadWorks has put in to make the software user friendly. It is very well presented, runs smoothly and makes the whole process of IRC much more easy and rewarding. The only problem is that it makes you want to stay on line longer – phone bills have been known to increase dramatically when IRC is discovered! Both clients allow all common IRC commands to be accessed from menus.

What's in a name?

Once connected to a server, the user must decide on a nickname (or 'nick'). All IRC users are identified by nick alone, so when you first choose one, make sure it will be the one you are to use consistently and is as original as possible. Only one person can use a nickname at a time, so choosing one such as 'John' probably isn't sensible if you want to be remembered next time (although interestingly, few people ever seem to use the nickname 'Simon'!).

As users are only recognised by their nick it is very easy to chat with people without them judging you in any way. A good example is one IRC user I know who has Cerebral Palsy and finds IRC an excellent way of chatting to people in a normal environment. My nickname on IRC is Skiff, nothing exciting, and I thought unlikely to be duplicated – until I bumped into someone from Russia using it!

With IRClient and iXRC the user's nick is entered into a preferences window, so that every time you connect to IRC, it is already set up.

Channel hopping

IRC is split up into hundreds of channels. It is easy to join an existing one or create a new one. Channels are similar to rooms and each is dedicated to a particular interest or topic. Channel names always begin with a hash (#), and #acorn is the channel where users of Acorn computers can meet

box

and chat, though not always on the topic of computers! There are people in the channel throughout the day, and different users drift in and out as the time ticks by.

The channel has a very international flavour, with regular users from the UK, US, Holland, Germany, Australia and New Zealand. The language used on #acorn is English and all the users for whom English is not their first language speak it exceptionally well. There is nearly always someone in the channel who can help you with any technical problem, and there are many software authors who drop in from time to time, such as Michael-Dennis Biemans, author of the popular *ReMIDI*. (His nick is XORcist)

Policing IRC

IRC channels must be regulated or they can easily become disorganised slanging matches. For this reason they have operators who are master users able to use certain commands not available to ordinary users. Ops are able





to 'kick' people out of channels if they are purposefully annoying others ('/kick' is the command used!), or even ban them if they go over the top. They can also change the topic of the channel. The topic is either the current topic for the conversation or just a longer channel name. A common one in #acorn is 'Acorn is ART!'.

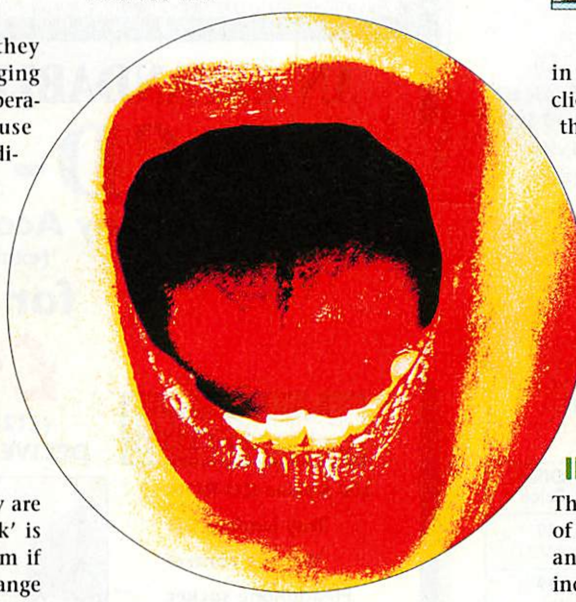
Channel ops also have the power to make other users ops, but a channel full of operators is a recipe for disaster. It is usual for ops to be reserved for regular users who have proved themselves trustworthy enough to be given operator status. Users lose their operator status when they leave a channel, and must be re-opped when they rejoin. Many channels contain 'bots' – which are programs designed to regulate users – giving operator status to regulars and evicting miscreants. (I was once evicted for inserting some ASCII art into #acorn with a macro!)



Starting a conversation

To join channel #acorn you type /join #acorn. Inside a channel, users talk by just typing in what they have to say. This appears on their display, and everyone else's within a few seconds – often a fraction of a second.

Users can also talk privately to each other – without allowing the rest of the channel to hear their conversation. To do this use the



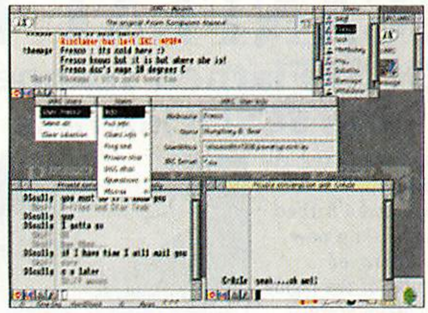
/msg command. So for example if I wish to ask XORcist something, I type:

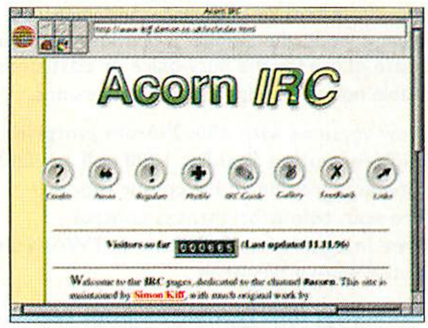
```
/msg XORcist How r u ?
```

As can be seen from this last example – abbreviations are very common and some can be a bit bewildering, especially if they do not seem to be short for anything. In #acorn, 're' is used to greet users coming back into the channel.

It is when sending private messages to people that the use of a client becomes an advantage.

By using IRClient and iXRC to start a private conversation with someone, the client will open a separate window. Click





in it, and you're talking to that person, click back in the #acorn window to talk to the whole channel.

It saves a lot of typing and makes the whole thing more readable. It is also possible to join more than one channel, so you are bombarded with conversations!

Another function provided by IRClient and iXRC is DCC (Direct Client Connection) which allows users to send files to each other by just dropping the file onto a DCC window from the program.

IRC on the Web

There is an IRC website set up for all users of the #acorn channel on IRC – beginners and regulars alike, which I maintain. It includes a beginners guide to IRC, pictures and profiles of many of the regular users, and even a group picture from a recent gathering at Acorn World.

Stop by soon!

In conclusion, if e-mail is compared to the postal service, then IRC must be compared to CB radio – with the added advantage that many conversations can be conducted at the same time, and the ability to chat with people all over the world.

Why not stop by #acorn soon, everyone is very friendly and will help you with any questions or problems you may have. A good time to try is when the channel is at its busiest, usually on Sunday evenings. AU

Mark Taylor takes a trip to ART to look at the Stork and NewsPAD

Portable prototypes





Ever since ART launched its web site the Acorn world has known about two prototype portables: the Stork and the NewsPAD. ART has recently been showing off prototypes of each machine and I took a trip down to the company to investigate further.

The Stork

An A7000 in a portable case is a simple but relatively accurate way of describing the Stork. It was initially designed to replace the A4 but for various reasons never went into production and now never will as ART has announced the 'Artisan'.

The Stork is based on an Olivetti case which is blue and houses a standard PC keyboard and a 9.5 inch greyscale screen. The screen supports a resolution of 640 x 480 in 16 greys and is more responsive than on the A4 – mouse pointer trails are no more.

It has a PCMCIA slot which could be used to allow the machine to connect to either a network or the Internet. It also has the usual parallel and serial ports as well as a multi-purpose expansion port allowing the Stork to be connected to an external monitor or docking station. There's no internal floppy disc drive but an external one can be connected via the parallel port.

It is powered by a ARM7500 chip which is mounted on an oddly shaped motherboard – the shape is dictated by the case. The machine houses a 425Mb 2.5 inch IDE hard disc and has two SODIMM (think of them as small SIMMs) sockets which can support up to 128Mb each – at the present time only 8Mb SODIMMs are available at a reasonable price. However, 16Mb for most Acorn users is ample.

Unlike the A4 which had to be driven either via a mouse or a set of rather awkward keys, the Stork has an inbuilt tracker ball. Despite the fact that the Stork is based on a PC case it manages to support all three mouse buttons.

The select button is on the side of the case next to the tracker ball with menu and adjust being on the opposite side of the case, located just above the escape key. This system is a little odd to start with but apparently you get used to it very quickly.

The machine's power is supplied by a Nicad battery which has a life of around two hours depending on how often the hard disc is accessed. The battery manager as featured on the A4 is present but now also features an option to 'cycle battery' which will fully discharge it, thus preventing battery imprinting.

> **Despite the fact that the Stork is based on a PC case it manages to support all three mouse buttons**

In use, the machine is just like a desktop Acorn in a much smaller case and once used to the tracker ball system it works like a dream. One useful feature is the ability to freeze the machine allowing you to come back to the machine up to a week later and restart it in exactly the same state it was left.

The Stork is very impressive and the Artisan is expected to be of a similar (or better) specification and so should be equally impressive. Oh, and if you're thinking this sounds just like the machine for you, Acorn might just make you one... for about £10,000!

The NewsPAD

The NewsPAD, unlike the Stork, has been designed with a specific purpose in mind – to be an electronic newspaper (more details of the NewsPAD project in the March issue Portables page). The NewsPAD looks very similar to a thin monitor – it is about the size of an A4 sheet of paper housing a high res 10.4 inch colour SVGA touch screen, a PCMCIA slot, an expansion port and a power button.

The screen is one of the best LCD screens I have ever seen. Supporting a resolution of 800 x 600 in 32K colours it is very responsive, anti aliases fonts very well and at first glance could almost be a standard monitor. The only problem is that the LCD is not very good at dithering and when displaying JPEGs and Replay movies in 256 colours it becomes obvious that it is an LCD screen.

The NewsPAD is powered by an 40MHz ARM7500 and again supports the SODIMM standard. The machine has a 420Mb 2.5 inch IDE hard disc, 16-bit sound and provision for an Infra Red link if required.

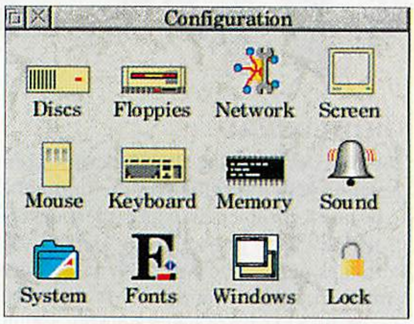
The expansion port allows a docking station to be connected, giving access to the usual expansion ports – serial, parallel, keyboard, mouse and monitor. The machine is again powered by a Nicad battery which lasts up to two hours – mainly due to the high power consumption of the screen.

As the system is based around a touch screen it uses what is called a one touch wimp: normal press for select, long press for menu and quick press for adjust – odd but intuitive nonetheless. The system is not designed for mass data entry but an on screen keyboard can be used if data entry is required.

The NewsPAD is nowhere near finished and ART hopes to make the machine lighter, have a longer battery life and perhaps be StrongARM powered. Until then, it brings the electronic newspaper one step nearer and is another impressive technological design from Acorn. AU

Strong upgrades

Martin Friar describes how to add drives to your machine



Use Configure to set the drives

For former RISC OS 3.5 users, the StrongARM upgrade has brought more than just speed. The RISC OS 3.7 ROM set, necessary for StrongARM support, comes with enhancements to the OS previously restricted to owners of the very latest Risc PCs.

Two of the most significant changes provide greater potential to expand your systems — support for ATAPI CD-ROM drives and for hard drives larger than 512Mb. With the availability of cheaper and faster drives, the lifting of restrictions makes the prospect of upgrading quite tempting.

One that hasn't been lifted is the hardware restriction that allows only two IDE devices to be attached to the standard IDE interface on the Risc PC.

This means there is a limitation of two IDE hard drives or one hard drive and one CD-ROM drive. In addition, owners of single-slice machines will find themselves looking for somewhere to put an additional hard drive.

This will result, in most cases, in the existing hard drive being replaced rather than an additional drive added.

A few companies in the Acorn marketplace offer part-exchange for hard drives, which may be worth considering to avoid the hassle of selling second-hand and the thought of a novelty paper-weight does not appeal.

Preparing for the upgrade

Firstly ensure that any valuable files have been backed up onto floppy disc or another removable media. Shut the computer down correctly and switch off. Remove the mains lead and twist the two locking pins at the back of the computer by 90 degrees and pull them out. Lift the lid at the back to remove it. If there are any podules fitted, now is the time to remove them.

Remember that static kills. If you still have the wristband supplied with the StrongARM upgrade, use it. If not, ensure that you earth yourself before touching anything inside the machine. Twist the two locking pins that hold the slices together from inside the machine and pull vertically to remove.

Remove the backplane (the vertical board with sockets for podules) by pulling gently upwards. Detach any connections to existing equipment in the top slice and lift the slice gently upwards. It may be an idea to label the leads to prevent problems at re-assembly time. Keep going until the bottom slice containing your floppy drive is removed.

Remember that static kills. If you still have the wristband supplied with the StrongARM upgrade, use it

The base unit of the Risc PC should now be in front of you with the power supply to on the right, exposing the hard drive at the front.

Replacing the hard drive

Firstly, make sure that the new drive will work successfully with the old one — both drives will need to be run together to transfer the software. The safest way to ensure that a new drive will slave with the old is to buy the same make. You'll probably find that the existing drive is a Conner, so another Conner may make a good choice.

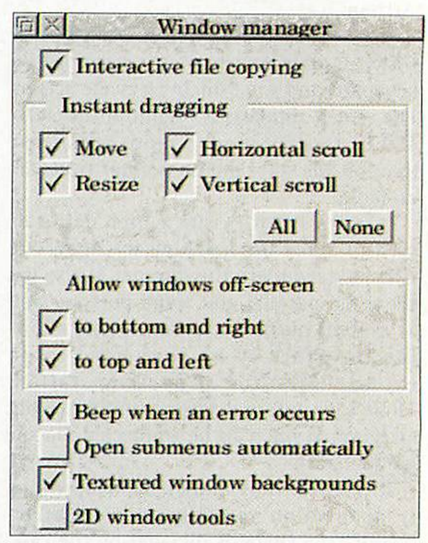
However, there are many other drives out there that will work and perhaps offer price and performance advantages. The golden rule, as always, is to ask an Acorn dealer unless you're really know what to do. A new drive will have DIP switches or links to change in order to tell the drive that it will be acting as a slave. Guidance on which links to change will be in the documentation that comes with the drive or, more typically, on the drive itself.

If you already have a CD-ROM drive, use leads that belong to this for the new hard drive as a temporary measure. If not, follow the ribbon cable that comes from the circuit board and goes to the hard drive. On many machines, this cable will go on from the hard drive to an unused connector, which should be attached to the new drive.

If you have a straight link with no spare connector, a quick trip to a local electronics store should yield a three-connector IDE cable.

Ensure that the hard drive is plugged into the middle connector, with the motherboard and CD-ROM drive at either end. Plug the spare power cable from the supply into the new drive.

Re-assemble the computer the best you can, being careful not to trap any loose cables. Make sure the new drive is sitting somewhere safe and cannot be accidentally knocked. Take a deep breath, and switch the system on. You should be able



Switch off the interactive file copying

to hear both drives power up and be presented with the normal desktop screen. Double-click on !Boot to run configure, select "discs", and increase the number of IDE hard discs to two. Run !Hform to format the new drive as number 5.

There should now be two hard drive icons on the icon bar. Copy the software from the old disc to the new. Turning off the verbose option from the filer and disabling the interactive file copying from within the "Windows" option from within !Configure will greatly increase the speed of transfer.

Once this is done, press F12 to access the command line and type:

```
*drive 5
*opt 4,2
```

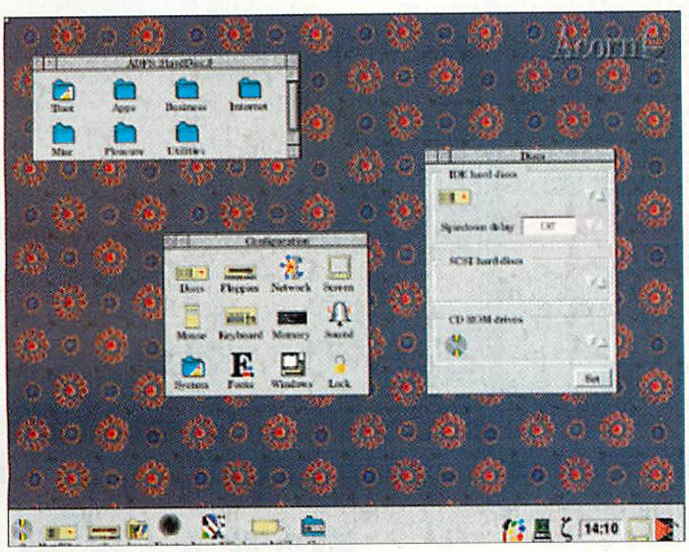
This will ensure the boot sequence will run on startup.

Now rename it to something like "old". Go to the new disc, and give it the original name of the old disc, perhaps "HardDisc" or something different if it's already been renamed. Return to Configure and reduce the number of hard drives back to one.

Close down, switch off and strip down the computer once more. Refer to the new drive's instructions and set the links/dip switches to tell it that it's now the master drive.

Unscrew the retaining bracket for the old drive, unplug it and put the new one in its place, using the same attachments. Re-assemble the computer for the final time, again being careful not to trap any cables.

Switch on the computer - your one and only hard drive should now show rather more free space than you're used to.



Adding a CD-ROM drive

Many different CD-ROM drives are currently available and prices have dropped sharply in recent times. A good quality 8x speed can be bought for around £100 and faster drives are coming onto market daily. Be aware though, that these can be noisy devices — at eight times the speed of an audio compact disc, the disc is really flying inside the machine. It's not unknown for discs to come out relatively hot.

Another consideration when choosing a drive is whether it has an audio out link. If your sound card has an audio-mixing facility, it will allow audio discs to be played through the normal sound system. You may also like to check the specified transfer rate of the drive — although the speed of the drive is a very good indicator, some drives produce higher Kb/s ratings than others.

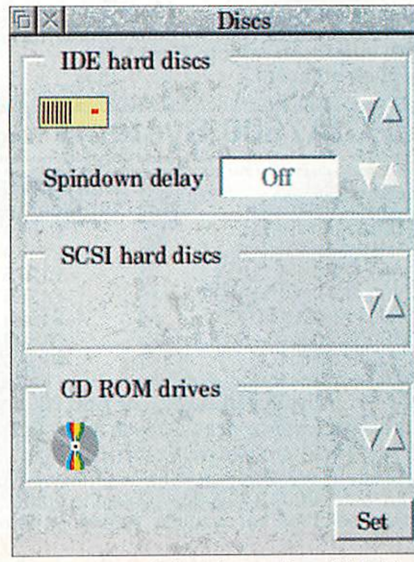
The CD-ROM drive will normally be placed in the bottom slice of a computer, taking up the 5.25in disc drive slot. Use a very sharp DIY knife to cut out the hole in the front panel. It's worth spending a little time to be careful with this. Unpack the new CD-ROM, being careful to remove any retaining screws put there to protect the mechanism from moving during shipping.

Turn the slice upside down and put the CD-ROM drive in place. The two screw holes on the bottom of the slice should match holes and screws provided by the CD-ROM drive manufacturer.

Use the end of the IDE cable that comes from the motherboard via the hard drive to plug into the CD-ROM drive. It may be that this is a straight link with no spare connector. If this is the case, a quick trip to a local electronics store will rectify the problem. Use the spare cable coming from the power supply to power the drive.

Re-assemble the computer, being careful not to trap any cables. Switch on and double click on !Boot to run the configure application.

Go to the "Discs" option, and increase the CD-ROM drives entry to one. The new drive should now work. Keep in mind that separate CD-ROM drivers will have to be installed for



Adjust the number of IDE drives

your PC Card partition, if you have one. Refer to the relevant manual and files supplied by Acorn or Aleph1.

The perils of LFAU

So you've installed your new hard disc, and copied across the software. The next question is why the same software takes more room on the bigger hard disc? The answer is the large file allocation unit of the drive, or LFAU for short. On my 1.6Gb drive, the LFAU is set to 4K compared to only 1K for my old 420Mb drive.

The LFAU is basically the smallest amount of space taken by each file, and will increase with the size of the drive. It follows then, that the larger the drive, the more space is wasted. Thankfully, the effect is quite minor, and a small price to pay for the overall increase in capacity. In any case, we should think ourselves lucky. Some PCs have LFAUs of up to 32K. AU

What is ATAPI?

ATAPI stands for AT Attachment Packet Interface, which is a protocol used across the IDE bus. It's a way of standardising access to IDE devices, providing a simple command set. This means that any ATAPI device should work with the ATAPI driver supplied in ROM.

Be warned though, that it's not necessarily this simple – this is a PC standard and Acorn's driver is thought to be less than 100 per cent compliant, and so are a few CD-ROM drives. In short, most will work, but the way to be absolutely sure is to ask your favourite Acorn dealer.

Showroom open Mon-Sat 10-18.00 hrs (All prices INCLUDE VAT) Carriage not included

CD-ROM Drives

Multi-Session, PhotoCD, CD-DA, White & Green Book compatible. SCSI drives require SCSI card with CDFS>2.20
Carriage: a=£2, b=£6, c=£8

Internal ATAPI CD-ROM Drives

Toshiba 8xCD ATAPI (Tray)	£80b
Panasonic 8xCD ATAPI (Tray)	£80b
Cable & Fitting Kit	£10a

Above drives are compatible with RiscPC/A7000 only.

Internal SCSI Drives (Tray)

Sony 2x CD SCSI 275ms	£80b
Pioneer 4.4x CD SCSI 150ms	£185b

PCW Verdict - 'It's extremely quick, and a bargain.'

Pioneer 10x CD SCSI 130ms	£220b

External SCSI CD-ROM Drives

Sony 2x CD SCSI 275ms	£135c
Pioneer 4.4x CD SCSI 150ms	£260c
Pioneer 10x CD SCSI 130ms	£300c

For SCSI interfaces refer to Hard Disc section adjacent.

Hard Discs

Carr.: a=£2, b=£6, c=£8

IDE 3½" Bare Hard Drives

Seagate (Connor) 1Gb	£150b
IBM 2.1Gb	£200b

ForA3000/A3010 hard discs see Hard Card section below.

SCSI 3½" Bare Hard Drives

IBM 540Mb	£170b
Fujitsu 1Gb	£250b
IBM 2Gb	£300b

Syquest Removable SCSI Drives

All following Syquest Drives include a Cartridge.

105Mb Internal	£109b	105Mb Cartridge	£29a
EZ230 External	£242c	EZ135Mb Cartr.	£20a
270Mb Internal	£165b	EZ230Mb Cartr.	£21a
270Mb External	£245c	270Mb Cartridge	£40a

Hard Disc Interfaces/Accessories

IDE interface	£85b	50-50C SCSI Cble	£10a
Morley Uncached	£113b	25D-50C SCSI Cbl	£10a
Morley Cached	£165b	SCSI2-50C Cable	£18a
Cumana SCSI II	£195b	SCSI2-25D cable	£18a
PowerTec SCSI2	£195b	50IDC 4-way SCSI	£10a
		50C Terminator	£10
		50HPC Terminator	£15
External case/psu	£90c	2nd IDE Drive Kit	£15a

zip/jaz Drives

- zip & jaz Drives work just like hard drives except they are removeable, letting you instantly access files and applications.
- zip drives use 100Mb capacity discs & jaz drives use 540Mb/1Gb discs allowing any number of discs giving unlimited capacity.
- The drives are fast. Data transfer speeds around 1Mb/s for zip drives & >2.3Mb/s for jaz drives - ideal to backup your hard drive.
- Each drive comes with 1 year warranty and a starter disc.
- These drives require a SCSI card that is suitable for removeable devices.

Internal zip drive (5¼")	**£145c**
External zip drive	**£145c**
Single 100Mb zip Cartridge	£15a
Pack of 6 zip Cartridges	£65b
Internal 1Gb jaz drive (3½")	**£350c**
External 1Gb jaz drive	**£435c**
Single 540Mb jaz cartridge	£Call
Single 1Gb jaz cartridge	£70a

TopicArt

TopicArtCD1 £20a

This CD-ROM Contains over 2000 ClipArt files, each in Draw, ArtWorks & EPS formats + Replay Movies & demos

Floppy discs £8a each

Single disc clipart containing approx. 50 high quality draw format clip art images on each disc, on a single subject. Comes with mono reference sheet. 20 subjects are available now. Please specify when ordering. Site licence is included.

1 General	11 Tools
2 Transport	12 AnimalsGB
3 Costumes	13 Chemical Hazard Signs
4 Entertainment	14 Fire/Emergency Signs
5 Bugs 2 Slugs	15 Hazard Signs
6 Road Signs	16 Safety Signs
7 Sports Equipment	17 Xmas1
8 Sports Figures	18 Xmas2
9 Dinosaurs	19 Xmas3
10 Symbols	20 Xmas4

RiscPC/A7000 Systems Ring now for special offers!

All include 1yr on-site maintenance. 3yr On-site is available. **Carriage included on computer systems.** For PC Cards see PC Card section below. **Please note that the 10Mb machine has one slice & a backplane is not fitted to RiscPC600.**

Computer Model	With AKF60 14" Monitor	With AKF91 17" Monitor	No Monitor
A7000 4MHD540	£1069	£1475	£835
A7000 4MHD540+8xCD	£1149	£1550	£915
RiscPC600 4MHD540	£1275	£1675	£1030
RiscPC600 4MHD540+8xCD	£1355	£1765	£1120
RiscPC700 5MHD540	£1525	£1900	£1280
RiscPC700 5MHD540+8xCD	£1600	£1990	£1370
RiscPC700 10MHD1Gb	£1750	£2100	£1530
RiscPC700 10MHD1Gb+8xCD	£1830	£2190	£1620

Deduct £50 for iiyama MF-8617E or Add £30 for iiyama MT-9017E.

StrongARM (when purchased with a RiscPC before end Jan '97) **£117**

20/20 Finance on Acorn computers

20% deposit (min) & 20 interest free monthly payments. Minimum loan £700, Maximum loan £2000. Available subject to status. Finance only applies to Acorn branded computer systems. Add other items to deposit. Ring now!

Coming Soon! The Acorn NetStation (Jan '97)

QuickLynk (v1.04) £32a

With 5m Local Cable	**£39a**
With 10m Local Cable	**£45a**
With 20m Local Cable	**£52a**

QuickLynk allows you to access another unattended RiscOS computer remotely using the serial port via modems or locally using a cable to connect the 2 computers. Each computer can be configured to allow access to any attached filing system device eg ADFS, IDE, SCSI, CDFS, etc. Once connected, files can be transferred to/from the remote computer. Other features include password access, auto dialler with phone book and chat mode to send messages to remote computer/user. Transfer rates up to 1.9 kbytes/s can be achieved with older computers, eg. A410, A3000, rising to 11.4 kbytes/s on the RiscPC range. The transfer rate is limited by the speed of the serial port. QuickLynk cannot at present be used directly from programs/command line. Requires RiscOS 3.10 or greater, ring for details.

QuickTile (v1.03) £29a

QuickTile allows you to create posters from ANY RiscOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references. New features include the facility to print inverted crop marks or no crop marks. QuickTile can only be used with the RiscOS printer Driver or TurboDrivers.

Requires RISCOS 3.10 or later. Return disc to upgrade for £4. Upgrade from Tiler for £18.

Mail Order - 0161-474 0778 (All prices INCLUDE VAT) The lowest prices without compromise

RiscPC PC Cards

A=Upgrade from ACA42 or bought with RiscPC, B=purchased seperately. Carr.: £6

PCCard	A	B
5x86-100	£350	£460
486DX4-100	£230	£350
486DX2-66	£175	£290
PC Pro (without PCExchange)		£40
Window '95 CD (Full)		£90a

The above can be installed directly from CD without previously installing PCDOS/MS-DOS.

RiscPC Upgrades

Carriage: £3 for Sound Cards

StrongARM Upgrade	£275b
2nd Slice with PSU	£117c
2nd Slice without PSU	£90c
YES 16 bit Mozart Card	£70a

Memory (Carriage £3)

Call for latest prices, they MAY vary.

RiscPC/A7000 SIMMS

4Mb	£25	8Mb	£30
16Mb	£65	32Mb	£140

RiscPC VRAM

1Mb	£90	2Mb	£120
1-2Mb u/g (exchange)			£90

Call for details and prices of memory upgrades for other Acorn computers.

Monitors (Carriage £10)

Older computers will require an adaptor	£12
AKF50 14" 0.28dp	£315
Ilyama MF-8617E 17"	£575

High spec FST Tube with 0.26" dot pitch

Ilyama MT-9017E 17"	£645

Very High spec Diamondtron tube, 0.25" stripe

Printers (Carriage £8)

Canon BJC-240	£200
Canon BJC-4100	£220
Canon BJC-4200	£250
Canon BJC-4550 (A3)	£360
Canon BJC-620 (720dpi)	£350
HP LaserJets Printers	£Call

Add £47 to above printers for TurboDriver

I³ Networking (Carr. £6)

A30X0 EtherLan 102	£140
Archi EtherLan 514	£140
RPC/A7k EtherLan 602	£120

Add £17 to above prices for Access+.

Portable Computers

Carriage: a=£2, b=£6, c=£8

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1Mb RAM	£290	£320
2Mb RAM	£320	£385
AutoRoute Express UK/Eire		**£62a**

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A-Link	£59a	PC Serial Link	£60a
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Hardware Upgrades

24i16 Card (1Mb)	£450b
FPA for 25MHz ARM3	£67a
iTV TVTuner+TT (1 only)	£100b
Joystick I/F (Not RiscPC)	£30a
Logitech Mouse (Acorn)	£26a
Midi Max Card (CC)	£79b
Movie Magic (1 only)	£250b
Scart Cable (9 or 15 pin)	£12a
Serial Upgrade (A3000)	£27a
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60W Speakers (mains)	£40b

Modems (Carriage £8)

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33.6 Voice Sportster	£180

Modems come with a 25-25 PC wired cable & 25-9 adaptor which may hinder the printer port. A 9-25 way cables is available at £10 See below. A3k/Archi req. Archi wired cable.

ANT Internet Suite II	£115a
ArcFax	£32a
Dual Serial Card	£104b
9-25 Archi or PC Wired Modem Cable	£12ea.
3-way Serial T-Switch (incl. comm. cable)	£32

Scanners (Carriage £8)

ScanLight Video 256	£215

Epson Colour Scanners, include !TWAIN & ImageMaster for RiscOS. Bundles include CorelPaint & OCR software for PC's/PC Cards.

GTx-5000 Para bundle	£369
GTx-5000 SCSI bundle	£425
GT-5000 SCSI (bare)	£369
GTx-8500 Para bundle	£Call
GT-8500 (bare)	£529
GTx-9500 bundle	£Call
GT-9500 (bare)	£679

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See top for other hard discs. Carriage £8

A3010 Hard Disc Multi-Pod

80Mb+User Port	£210
130Mb+User Port	£275
160Mb+User Port	£320

A3000 IDE Hardcards

80Mb + User Port	£170
130Mb + User Port	£210
160Mb + User Port	£255

Printer Consumables

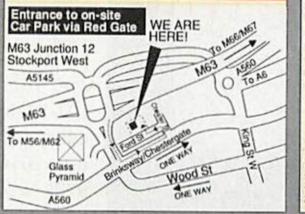
Carriage: £2 for Cartridges, £8 for Toner

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Acorn RiscPC Tech Ref Manual	£49.95c
ArtWorks Made Easy (Dabs)	£5.00a
Budget DTP (Dabs)	£5.00a
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RiscOS 3 First Steps (Dabs)	£5.00a
Wimp Programming for All (Beebug)	£10.95a

CD-ROM's (Carriage £2)

CD software for RiscOS

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PhotoDesk2 (Spacetech)	£245b
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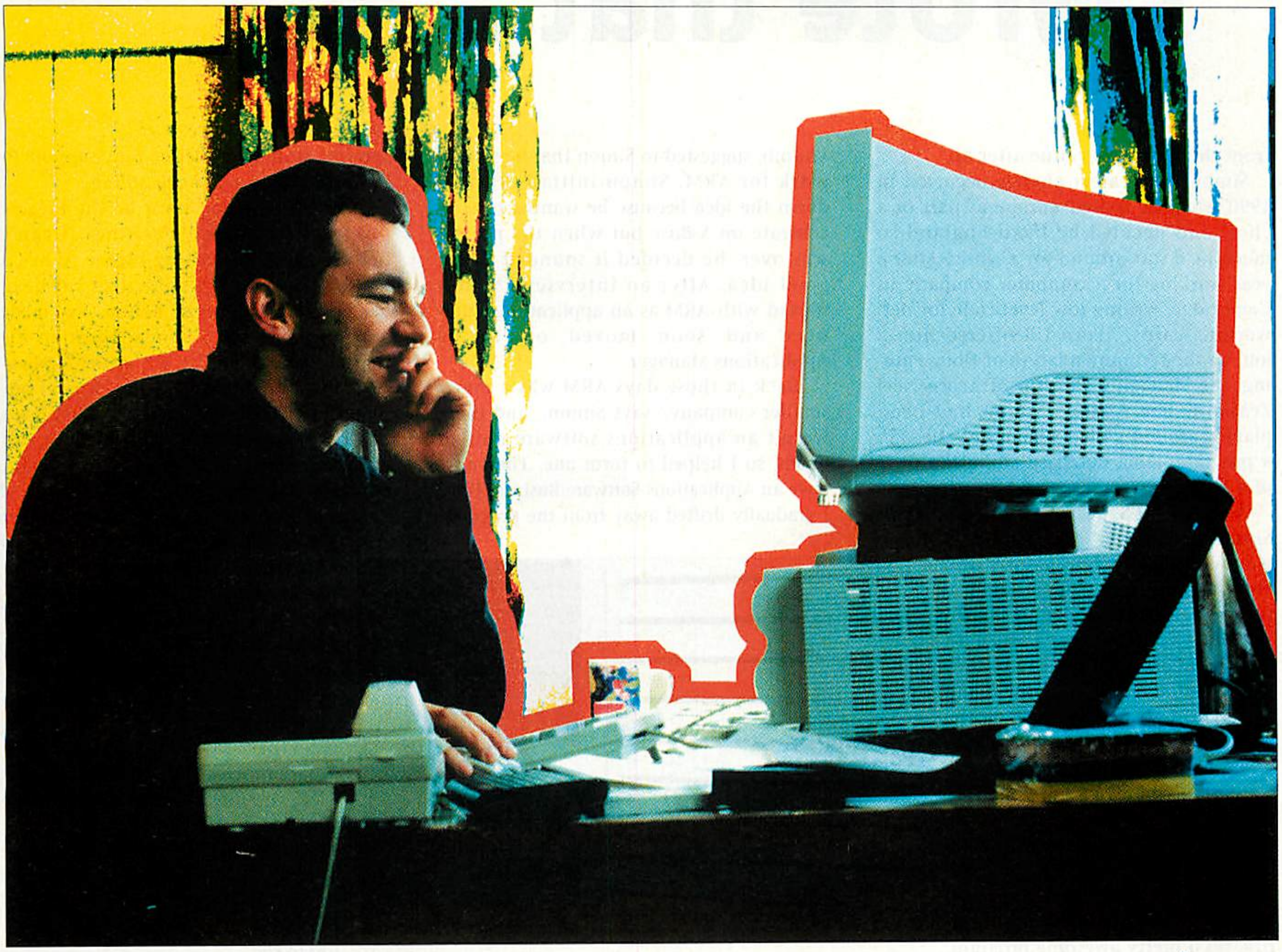
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FEB 97

I wrote that...



Mark Moxon catches up with Simon Glass, author of *S-Base* and *Rainbow*, ARM expert, and amateur golfer, at his home in Christchurch, New Zealand

He'll probably kill me for saying this, but Simon Glass is a much better programmer than a golfer. The Christchurch sun might be shining, the pine trees forming a beautiful backdrop to the Queen Elizabeth II golf course, and the greens sloping as smoothly as a billiard table, but that damn ball just won't go in that hole, however hard he tries. Still, he manages to take it all in his stride: Simon isn't the sort of person who lets a mere game of golf ruin his day.

Born and raised in Christchurch on the east coast of New Zealand's South Island, Simon has spent the last six years in England, working for various computer companies and programming some very well known products for the Acorn platform. He's back in New Zealand, has formed a new company, and is slowly shedding the cynicism he picked up in England for the more laid-back lifestyle of the Land of the Long White Cloud.

'I've set up a company called Bluewater Systems here in Christchurch,' says Simon, 'the idea of which is to promote ARM in the South Pacific, devoting time to building awareness of ARM in the area. We also do a fair amount of software consultation for the US and the UK, and the plan is to build up the company to employ a few people and take it from there.'

From degree to designing

To set up a company like Bluewater requires a fair amount of experience in the field and that's something that Simon isn't lacking, despite his young age of 28. His story is an interesting one.

'The whole computing thing started for me with a BSc at Canterbury University in Computer Science, from which I graduated in 1989,' says Simon. 'I'd been interested in Acorns for a number of years, ever since I'd seen a BBC running *Monsters* with much clearer colours than the other home computers around at the time and I got into programming via my mum, who did a course in programming.

'The key guy in Christchurch was Fred Frampton, the local Acorn dealer, who encouraged a lot of people – myself included – to do lots of programming and in the late 1980s Steve Simatos (who now heads Online Media in New Zealand) and I formed a company called GST to sell administration systems into schools. The name of the company helped: GST is the equivalent to VAT in the UK, so when we rang up and said we were from GST, we often got through to the right person very quickly, who was terribly relieved to find out we weren't

I wrote that...

from the Inland Revenue after all.'

Simon's big career change occurred in 1990 when he toured Europe as part of a choir and decided he liked England so much he'd stay around for a while. After a year working for a computer company in Cambridge, writing low level code for networking cards, Acorn UK offered him a job, on the recommendation of Doug Pauling, the Managing Director of Acorn New Zealand. The reason? Simon had been playing around with a system he called 'S', a programmable database along the lines of *d-Base*.

'We called it S, because it stood for both Simon and Steve,' says Simon. 'I was writing the language S and Steve was using it to write applications, that's how it started. Acorn lent me a computer, Longman Logotron contacted me to say they would be interested in selling it and I moved to London to work on the project full time. After about a year and a half, working 12 hours a day – and sometimes 16 – I had the first version of *S-Base* ready.'



S-Base is, of course, the only fully programmable relational database available for Acorn machines and as anyone who has used it will testify, it's a pretty awesome program, if only because of its scope. It contains a full programming language called S, a text editor, a full screen form editor, a template file editor, a complete WYSIWYG reporting system, an optimal querying system... it's a big old beast.

'I suppose you could say it was my *magnum opus*,' says Simon. 'I've always been interested in the subject, and I enjoyed programming it. After the first version, I started on the second version, which addressed the problem of *S-Base* being a bit difficult to use and after over 2000 enhancements and a programming stint from January 1993 to October 1993, we had *S-Base 2*.'

Enter ARM Ltd

Simon soon followed up *S-Base* with *Rainbow*, a multimedia package for kids that was also sold by Longman, but the allure of freelance software writing was fading. When fellow Kiwi Dave Jaggar, who worked for ARM Ltd and who would go on to co-design the StrongARM, Piccolo and Thumb, suggested to Simon that he should work for ARM, Simon initially turned down the idea because he wanted to concentrate on *S-Base* but when the project was over, he decided it sounded like a good idea. After an interview, Simon started with ARM as an applications engineer and soon moved on to be Applications Manager.

'Back in those days ARM was a much smaller company,' says Simon, 'and there wasn't an applications software unit so much, so I helped to form one. They now have an Applications Software Business Unit. I gradually drifted away from the programming side towards the customer side and did a lot of travelling to places like the USA and Japan, meeting with customers. I was involved in writing components like JPEG compression and DSP software, but I'm a people person and I started to employ people, like Dominic Symes, the author of *Zap*, to actually write the code.'

This doesn't mean that Simon is no longer writing code: far from it. He still adds features to *S-Base* all the time and is very proud of his work. The source code for *S-Base 2* has grown to a whopping 6.3Mb, meaning Simon was programming about 60K of source code per week when he was writing *S-Base*, a pretty prolific amount. The reason for such productivity?

'It was something I was very, very interested in,' says Simon, 'and I was highly motivated. I was also working on my own, which meant I didn't have to understand anyone else's code at any time and I also worked very long hours. I modified RISC OS Lib, which has doubled in size since I got the source from Acorn and includes all sorts of stuff from better font support to improved dialogue box handling.

'The whole thing must be the biggest program for Acorn machines: I can't believe there's anything bigger. When I look at the code, it's more than I remember programming to be honest. I've made 45 changes to the *S-Base* application file format throughout the life of the application and I'm still working on it, and am planning to set up an *S-Base* web site here in New Zealand. Whatever you do, it can always be better and I think it's important to realise that.'

Simon's choice of programming language is C, with a little bit of C++ thrown in for good measure. He mainly sticks to C though because the C++ compiler is relatively new for the Acorn side and ARM is still working on a genuine C++ compiler, by all accounts.

'I'm a great fan of Acorn machines,' says Simon, 'and having programmed for both Windows and RISC OS, I'm only too aware of the limitations of PCs. I much prefer RISC OS, and I'll stick with it as far as I can. As for the future, obviously one of my major aims in life is to beat Steve at golf and I'm also learning to fly.'

You've got to get things in perspective, after all. *S-Base* might be impressive but being able to knock a tiny ball of wound up elastic into a hole from 200 yards is surely even more amazing. Well, it is if you're a better programmer than a golfer... AU

Simon Glass selected discography

- *Office Master*: A suite of accounting programs for the BBC
- *S*: The first database language Simon wrote on the Arc, used to implement a few school administration systems sold by GST
- *S-Base*: The all-singing, all-dancing programmable relational database, programmed by Simon and heavily influenced by Steve
- *Rainbow*: A multimedia application for kids

Top of the form

David Matthewman looks at HTML forms in this issue's tutorial

Information flow on the World Wide Web was originally all one-way: from the server to the client. Someone would request HTML pages and these would be sent, read and discarded. The server sending the pages didn't really get any more information than the pages required and where to send them; it didn't need to.

Soon it became apparent that this could be improved. If a system could be devised whereby information could be fed back to the server from the user, pages could become more interactive. *Forms* – present in the 2.0 specification of HTML – provided such an interface.

The <form> tag

There are two parts to a form on the World Wide Web. The simple part is the HTML used to generate the form, which is what I'll discuss here. Rather more complicated is the program on the server which has to process the information. This is called a CGI script, which I won't be covering, although more details are in the box-out, *CGI scripts* – over the page. For the purposes of this tutorial, the CGI script exists as some 'black box' to which the form information is sent, and which in true Blue Peter style has been 'prepared earlier'.

An HTML form is enclosed by the **<form>...</form>** tag pair. Other standard HTML elements can appear within a form – indeed many forms use tables to align the various elements neatly. The opening form tag takes a couple of crucial attributes: **method** and **action**.

The **method** attribute can be either GET or POST. The difference is in the way that information is passed to the CGI script, and the details only need to be worried about if you are writing CGI scripts as well. However, GET requests are limited on some systems by the amount of information that they can use, so POST is preferable for a large form. Many well-written CGI scripts will accept both types of request, but some don't, so take care.

The **action** attribute should contain the URL of the CGI script. This will usually be in a directory on the server called *cgi-bin*, although it doesn't have to be. The full form opening tag would therefore look something like this:

```
<form method="GET"
action="http://www.foo.com/cgi-bin/bar.cgi">
```

Input elements

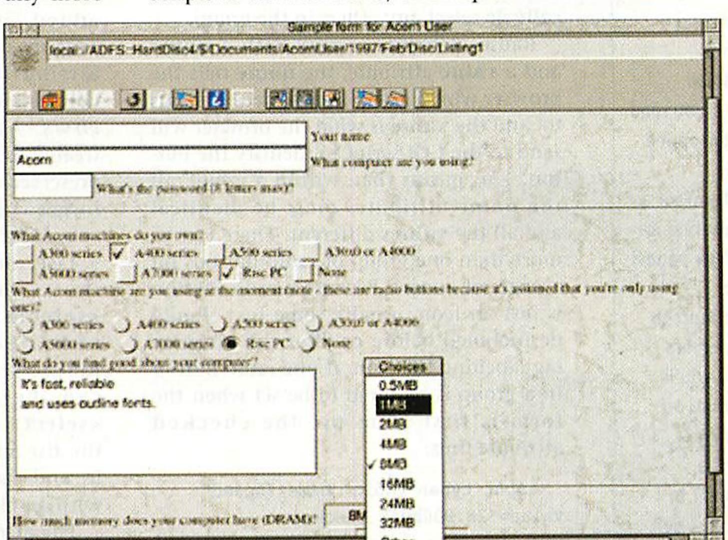
Once the **<form>...</form>** tag pair have been used to define the form, it will need to be filled with input elements. There are a number of these for entering different information in an HTML form. All of them have the syntax:

```
<input type="type" … >
```

where ... represents other attributes that change with the input type. The types are:

text: This is a single line of text, and probably the most basic of form elements. It's the equivalent of a writable icon in a RISC OS dialogue box and is the element that will be used if the type attribute is omitted. Other attributes in this element are: **name="text"**, giving the name of the field which will be passed to the CGI script; **size=n**, an integer giving the size of the field in characters; **value="text"**, giving default text to be displayed; **maxlength=n**, an integer giving the maximum length of input that will be accepted.

password: This has the same syntax as a text element, but any characters the user types will appear as stars on the screen. Note that it shouldn't be used for sensitive information like credit card details without some other protection because



A standard HTML form showing all the elements – on this issue's disc

Top of the f

the password will be transmitted unencoded across the Internet – it's use is therefore limited.

submit: This is the button which the user clicks on (or whatever) to send the form. The form *must* have one of these (or an image element), or the data will never get sent to the server. The **value** attribute of a submit button tells the browser what text to use on the button – if it is not used the browser will supply a default. There can be multiple submit buttons – in this case they must have different values, and must also have **name** attributes so that the browser can identify the button used to the CGI script.

image: An image can also be used to submit a form, instead of or in addition to a submit element. Attributes for images are: **src="image.gif"**, the URL of the image; **name="text"**, the name that will be used to identify the button to the CGI script; **value="text"**, the text that will be sent to the CGI script by text-only browsers (otherwise the co-ordinates of the point in the image that was clicked on will be sent).

Submit, reset and image buttons by convention come at the end of a form, although technically they can appear anywhere

reset: This clears the form and sets all the elements back to their default values. Like submit, it can have a **value** attribute to tell the browser what text to display on the button.

radio: These elements (always in groups of more than one) act like radio buttons in RISC OS. In other words, only one radio element in a group can be selected at a time, and clicking on one will automatically de-select any others in the group.

Radio elements *require* both a **name** and a **value** attribute; the **name** tells the browser which group the element belongs to, and the **value** is what the browser will send to the CGI script to identify the button. This means that, within a group, all the **name** attributes must be identical and all the **values** different. There can be more than one group of radio buttons on a page, of course. Because a radio button is just an icon, usually some text should be included before or after the **<input>** tag labelling the icon. If one radio button in a group is required to be set when the form is first seen, use the **checked** attribute thus:

```
<input type="radio" name="speed"
value="28.800bps" checked>
```

checkbox: This is the equivalent of an option box in RISC OS; it can either be on or off, and doesn't affect any other boxes in the widow. Like the radio button it can have **name**, **value** and **checked** attributes, and should be accompanied by a separate label. However, because checkboxes aren't part of a group, they should all have unique **name** attributes, and the value is optional – if it's missed off, a default value of 'on' will be sent instead when the box is ticked.

hidden: A hidden field isn't displayed, and has only a **name** and **value** attribute. It is used for passing information that you want to send to the form that you don't want to leave the user to input – for instance, where the form information is to be sent. It's also useful in complex CGI scripts that generate a series of forms for storing information input in a previous form. It *shouldn't* be used for sensitive information, as the browser can always see it by viewing the HTML source; it's not really all that 'hidden'.

Submit, reset and image buttons by convention come at the end of a form, although technically they can appear anywhere. There are good reasons for putting them at the end, not least because this is where users expect to find them.

Other form elements

There are two other form elements which don't use the **<input>** tag: text areas and lists. Text areas are blocks of text, and are added using the **<textarea>...</textarea>** tag *pair*. The tag takes three attributes: a **name**, the number of columns **cols**, and the number of rows **rows**. Any text between the tags is treated as default text, and line breaks are preserved unlike in normal HTML. *Don't* forget the closing **</textarea>** tag, or your HTML probably won't parse at all.

Lists are slightly more complicated in that they involve two tags: **<select>...</select>** and **<option>**. Lists are similar to pop-up menus in RISC OS, in that one or more choices can be made from a list. The **<select>...</select>** tag pair brackets the list and contains information about it, and each **<option>** tag is associated with an element on the list.

The attributes in the opening **<select>** tag are as follows: **name="name"**, the name of the menu; **size=n**, the number of options on-screen at once (1 is a pop-up menu, more than 1 is usually a scrolled list, although *ArcWeb* doesn't support this); **multiple**, included if more than one item from the list can be selected at any one time.

The **<option>** tag can have a **selected** attribute, in which case it is selected by default. The text for the option in the menu is written after the tag. Normally

Servers and clients

Last issue I covered the relationship between clients and servers in a small amount of detail. However, even if you read it, here's a quick re-cap because it dropped you in the deep end pretty quickly.

A 'client' is basically a snobby term for a Web browser, such as ArcWeb. A server is the program that sends out the Web pages; it's what's sitting at the far end of http://www.idg.co.uk/. Clients connect to servers and ask for Web pages – servers send the Web pages back. Usually you'll have a client running on the machine on your Desktop. Servers are usually consigned to large Unix boxes or multi-processor machines running NT in concrete bunkers across the country (well, sort of – you get the idea).

If accessing Web pages on your local hard disc, the Filer is effectively acting as a server. Unfortunately it isn't a very sophisticated server, and doesn't know how to run CGI scripts. The upshot of this is that forms can't really be used locally (programs can be run directly from the disc, but will have problems passing them information from the form).

orm

CGI scripts

To do anything more complicated than e-mail someone with the information presented in a form, a CGI script will probably need to be written to do it. A CGI script is a program that runs on the server and acts as an 'extra step' in processing a request. For instance, it may take the input from a form and output a different HTML page depending upon the input. It may do something a great deal more complicated, such as acting as the interface to a database maintained elsewhere.

CGI scripts may be written in any language but the most common are Perl and C and C++. Because Web serving has grown up on the Unix platform, most CGI scripts have a very Unix feel to them. In fact, the whole idea of CGI scripting doesn't translate all that well to other platforms, although there are implementations of them for the servers that run on RISC OS.

The writing of CGI scripts is beyond the scope of this tutorial, and not just for space reasons. Badly written CGI scripts can cause massive security headaches for the server on which they are running. Most ISPs that allow you Web space won't allow the use of your own CGI scripts in their basic service for this very reason. To investigate CGI scripting further there are a number of books available on the subject from the computer sections of larger bookstores – most HTML books have a section on it.

One of the best of these is the Nutshell Handbook *CGI Programming on the World Wide Web* by Shishir Gunavaram, published by O'Reilly & Associates (ORA). The Nutshell Handbooks in general are very good – well-written, technical but friendly – and sport very distinctive covers with black and white engravings of animals on them. *CGI Programming* has a mouse; anyone interested in the subject should also seek out *Programming Perl*, universally known as 'The Camel Book' and among the most readable programming book ever written. ORA also does a beginners' Perl book, and HTML reference book and guides to both Java and JavaScript; all are worth buying if you're interested in the subject.

Supplier: O'Reilly & Associates
WWW: http://www.ora.com/
E-mail: orders@ora.com
ISBN: CGI Programming - 1-56592-168-2
Programming Perl - 1-56592-149-6

Mailing scripts

Because mailing form information to a particular user (often the author of the Web page) is a fairly standard operation, most ISPs provide a standard CGI script for their users to do this. At the very least, therefore, information will be e-mailed back to you when someone fills in a form. How this is done varies from ISP to ISP – ask your particular one, but here's how to do it for the three most popular Acorn owners' ISPs:

Demon Internet: Demon provides a standard mailer for its customers – it has the limitation that it only accepts GET requests. To use it include:

```
action="/cgi-bin/mailform"
```

in the <form> tag – the information will be sent to webmaster@hostname.demon.co.uk where hostname is your Demon host name. For more information and instructions see:
http://www.demon.net/www/homepages/faq/tech.html#providedscripts

Zynet: Zynet has a very comprehensive form-processing CGI script with a wide variety of options. It supports POST requests and can be used by including:

```
action="/cbin/lib/form-mail.pl"
```

in the <form> tag. See http://www.zynet.co.uk/zynet/information/tech-support/web/cgidoc/form-mail.html for more details.

Argonet: Argonet has a standard mailer form. To use it include:

```
action="/cgi-bin/mail"
```

in the <form> tag. It also requires a couple of other variables to be set – these are best entered as hidden variable using:

```
<input type="hidden" name="linkto" value="url">
<input type="hidden" name="mailto" value="email address">
```

where `url` is the URL of the page to go to when the form has been submitted, and `email address` is the e-mail address that the information should be sent to. Contact Argonet for more information – this facility was very new at the time of writing.

this would be the text sent to the CGI script along with the name given in the **<select>** tag, but different text can be sent by using a **value="value"** attribute in the **<option>** tag.

> A CGI script is a program that runs on the server and acts as an extra step in processing a request

Endpiece

Forms aren't easy to get to grips with at first. For a start, all the input elements have subtly different syntax, even down to some being single tags and others tag pairs. This is confusing until you get the hang of it. What happens to the data after the submit button is clicked on is even more of a mystery, involving strange data encodings and programs written in unfamiliar languages on distant machines.

I say this not to discourage you but to reassure. If you're feeling a bit bemused having read this month's tutorial, that's OK. If you use forms much, they'll quickly become second nature. There's a single file on this issue's disc with a sample HTML form that makes use of all the elements. Note that the **action=""** attribute has deliberately been left blank; the form as it stands won't actually do anything, but with access to a server running CGI scripts, it's easy to adapt it so that it does.

Spreadsheets shootout

Mike Tomkinson compares the three main Acorn spreadsheets

This comparative review looks at the three big boys in Acorn spreadsheets – *Eureka 3* from Longman Logotron, *Schema 2* from Clares and *Fireworkz* from Colton. You may wonder about *PipeDream* 4.5 from Colton but it is not yet available to new users, only as an upgrade. It is also now so similar to *Fireworkz* that it is worth upgrading to *PD 4.5* if you have an older version. For this reason it gets an honourable mention.

Few articles are as controversial as those which compare products. They usually upset some people so let me say now that all these spreadsheets are very good products. Your personal choice will eventually come down to factors like: personal preference, experience, cost, features, technical support, the manual, the tutorial or the colour of the box.

A spreadsheet is a piece of software with rows and columns which form cells into which numbers, text and formulae can be placed. All spreadsheets can do this so what distinguishes one from another? Well quite a lot at the top end of the market.

A general purpose, content free piece of software can become highly specialised and specific depending on what the user requires of it. I will therefore concentrate on differences between packages rather than their similarities. If I say a feature is not present no doubt someone will say it is via some clever little workround or as a macro.

Two factors not considered in this review are size and speed. If a spreadsheet says it can handle 30000 rows by 30000 columns I won't disbelieve the claim. I know that my computer, and most others, couldn't handle it anyway because of limited memory.

The speed debate is equally sterile as a StrongARM equipped Risc PC should knock spots off an A3000. I am comparing spreadsheets not computers.

	A	B	C	D	E
1	Results				
2		Turnover	17400	Profit	5400
3					
4	Cost Price	1.2			
5	Markup (percent)	45			
6	Sale price	1.74			
7	Sales	10000			
8	Turnover	17400			

```
A1 : Results
A4 : Cost Price
A5 : Markup (percent)
A6 : Sale price
A7 : Sales
A8 : Turnover
B2 : Turnover
B4 : 1.2
B5 : 45
B6 : =B4*(1+B5/100)
B7 : 10000
B8 : =B6*B7
C2 : =B8
D2 : Profit
E2 : =C2-B7*B4
```

An example and formula of circular iterative references

Schema 2

Many people will be familiar with *Schema 2* from Clares without even realising. The spreadsheet part of *!Advance* is a subset of *Schema 2,* just as the database is a subset of *DataPower*. For this reason it may be the logical choice for those wishing for something more powerful than the *!Advance* version. The interface will already be familiar as will many of the menu and keystrip actions.

It certainly has the best manual of the three packages reviewed and includes an excellent tutorial section designed to introduce new functions and features quickly. It would make an excellent choice for a school wishing to have an upgrade path from GCSE to A/AS Level especially if they use *!Advance* at GCSE.

The particularly good feature of *Schema 2* is its flexibility. Macros are easy to record and write though more awkward to implement, functions can be added to menus, data is as easily transferred to other applications and the button bar can also be user configured. It is highly intuitive and easy to use as well as being powerful.

You may wonder where the references to macros are in *Schema 2* – the manual hardly mentions them. Clares realise that not everyone will require macros and have produced a separate free manual for macro users. This is supplied along with another resource disc and macro library. It is also available as an *Impression* document, very useful for teachers who need to make up worksheets. Clares are to be congratulated on this sensible approach – others please take note.

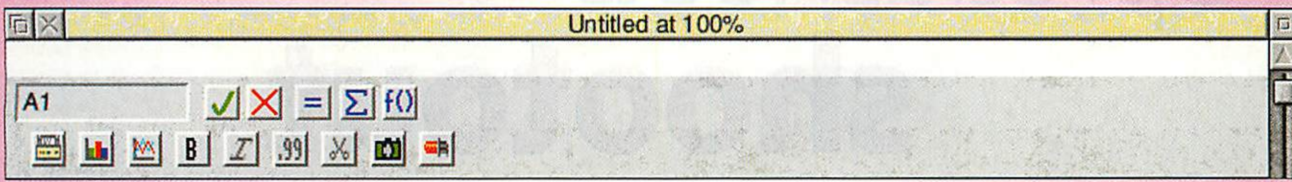
In use *Schema 2* is clear, clean and has no quirks which would prevent anyone migrating to it from another less powerful package. It is the obvious choice for *!Advance* users used to the integrated approach of that package as it is compatible with its other bigger siblings *Impression* and *DataPower*. The common clipboard makes the transfer of data very easy.

Schema 2 soon established itself as a 'must have' on my hard disc. Implementing macros is not easy, it is done via a separate editor/compiler with an *!Edit* like look called, surprisingly enough, *!MacroEdit*. Macros are an advanced feature and the learning curve can be steep especially for those with little or no programming experience.

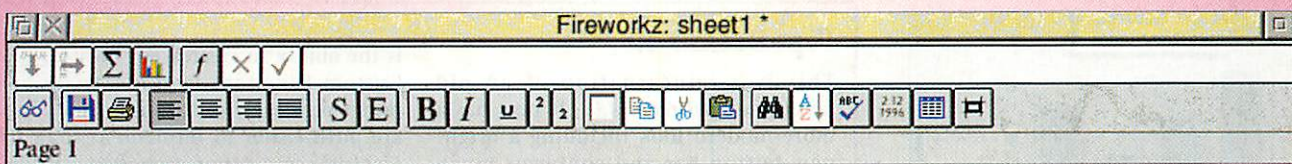
Product details

Product: Schema 2
Supplier: Clares
Address: 98 Middlewich Road, Rudheath, Northwich, Cheshire, CW9 7DA
Tel: (01606) 48511
Price: £114 + VAT single user, £599 + VAT unlimited licence. A 30 per cent reduction applies if trading up from !Advance
Strengths: Ease of use • Good interface • Excellent manual • Graphs
Weaknesses: Macro implementation

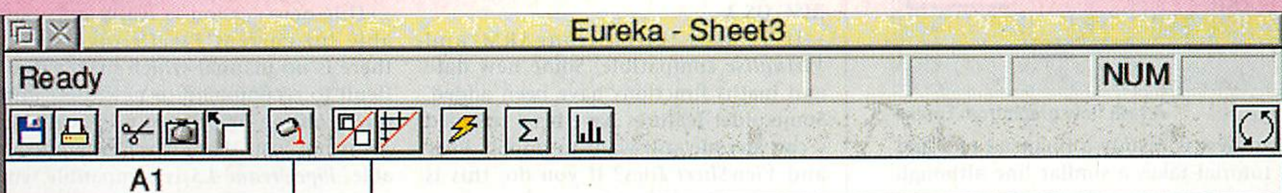
Bar wars



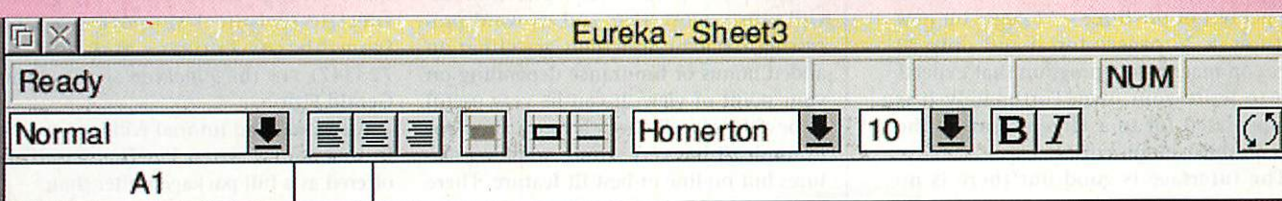
Schema 2 button bar can be user configured



Firewo rkz button bar has a built-in help line

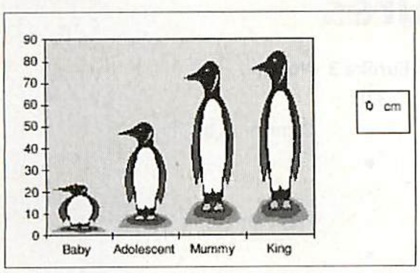


Eureka's button bar can look like this...



...or like this

Fireworkz



An example of penguin graphics from FireWorkz

Much of what is said about *PipeDream* can be applied to *Fireworkz*. It is not quite as quirky and looks more modern but the integrated approach is not to everyone's liking. Having said that it is highly flexible and does away with the need to get heavily into DTP.

It lacks some features like circular iteration but gains many more by association with a word processor. It is ideal for projects where the spreadsheet is the tool *behind* the presentation. It is excellent at drawing a wide range of graphs, always a strength of *PipeDream* from version 4 onwards.

Macros deserve some explanation. There is a command language which is equivalent to the macro language in other spreadsheets, however, a !Readme file on the disc warns that this is for the intrepid and is not supported by Colton. For this reason *Fireworkz* cannot be recommended for A Level IT courses which rely upon the ability to use macros – unless you are intrepid. Abacus Training and their Z-Line user support group will be able to help.

The ability to produce an automatic mail-merge is an example of where it scores over the other two packages and for this reason the comparison becomes unfair as *Fireworkz* is really two programs – a spreadsheet and a word processor. It is difficult to separate the two and I have tried to concentrate on the main aim of the review – spreadsheets.

For lots of built-in functions then this is the one. It also allows a great deal of control over the look of the spreadsheet, both on screen and ultimately on paper. For anyone wanting an integrated package then it has no rivals and its big brother *Fireworkz Pro* has database facilities. The manuals are good and the button bar is the best of all the packages with a built-in help line to explain everything.

In use, I personally found that at times the common user interface was more of a hindrance than a help. The alternative is using *Resultz* which is just a spreadsheet, but the Colton pricing policy of selling it at only £20 less means that users would be advised to pay the difference for the added flexibility of the word processor.

Product details

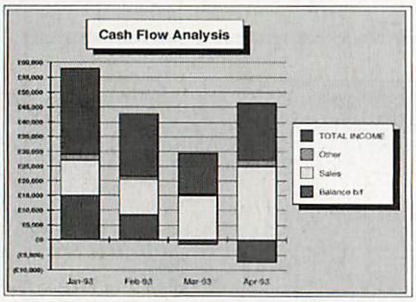
Product: FireWorkz
Supplier: Colton Software
Address: 7 Signet Court, Swann's Road, Cambridge, CB5 8LA
Tel: (01223) 311881
Price: £99 + VAT single user, £594 + VAT unlimited licence. Reductions if trading up from Resultz, Wordz or PipeDream.
Strengths: Integrated package • Functions • Graphs
Weaknesses: No circular iteration • No support for macros

Eureka 3

Eureka 3 really attempts to be the *Excel* of the Acorn world. It is a very workmanlike spreadsheet with many good features and functions. In many ways it is the most powerful of the spreadsheets looked at here. The new features in *Eureka 3* go to show what was badly missing in the earlier version.

The manual takes the view that a

Spreadsheets shootout



A cash flow graph from Eureka

spreadsheet is mainly a financial tool and the tutorial takes a similar line although there are other examples on the accompanying examples disc. The manual itself is the poorest of the three – 12 pages on new features, a 76 page tutorial and only 24 pages on macros in a program that expects you to write your own. Fortunately it is compensated for to a large extent by the files on the examples disc.

The interface is good but there is no help of any type. This would need to be addressed if it were to gain my vote as the best spreadsheet. This really sums up what is wrong with *Eureka* – the user needs to know an awful lot about spreadsheets already to get the best from it. It needs to be used all the time and for this reason it is a very good *second* spreadsheet and would certainly be my first choice for business users or post 16+ students.

It is the strongest in terms of file import/export and just the ability to handle *Excel* files (up to *Excel 4*) would be the strongest argument in its favour for many.

Much comes down to personal choice and in many ways *Eureka* lost my personal vote as it was so daunting at first with little help of the type I find useful.

Product details

Product: Eureka 3
Supplier: Longman Logotron
Address: 124 Cambridge Science Park, Milton Road, Cambridge, CB4 4ZS
Tel: (01223) 425558
Price: £99 + VAT single user and £99 + VAT plus £743 + VAT for an unlimited licence – this is because Longman sell licences additional to the cost of the software
Strengths: Powerful • Can handle Excel files
Weaknesses: Poor manual • No online help

PipeDream 4.5

This is a reincarnation of an old favourite *PipeDream 4.0*. It now has a more modern look including a bright new button bar and conforms much more to the type of look we expect of RISC OS 3.

It is also fully StrongARM and *Virtualise* compatible. Some new date and maths functions have been added. Some older features have been retained – can anyone still want to import *View* and *ViewSheet* files? If you do, this is the spreadsheet for you.

As a pure spreadsheet *PipeDream 4.5* will satisfy most users and its word processing/database functions are either an added bonus or hindrance depending on your point of view. It can be very useful to be able to spell check a spreadsheet for example. It has very strong graphing features but no line of best fit feature. There are plenty of built-in functions and there is the ability to create your own via the Custom Functions feature. Macros are rather perversely called Commands and are both easier to implement than in *Fireworkz* and better supported – if you have a *PipeDream* manual.

This new version is really only suitable for current *PipeDream* users as there is no manual which makes it difficult to recommend to new users until one – online or printed – is available. All is not lost, there is *some* help available. *PipeDream 4.5* is compatible with *!BubbleHelp*, the excellent utility from Dave Pilling. There is also *PipeDream* specific technical support available from Abacus Training (tel: (01793) 723347) via the *PipeLine* service from Gerald Fitton.

A manual and tutorial will be available in due course when *PipeDream* will be offered as a full package rather than just as an upgrade to existing users. AU

Spreadsheet features

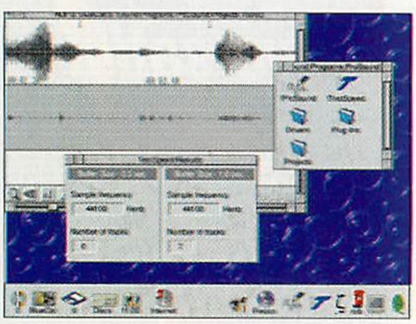
Feature	Fireworkz	Schema 2	Eureka 3	Notes
Version reviewed	1.3	1.04	3.05	
Macros	•	•	•	Commands in Fireworkz
Macro library	-	•	•	
Word processing	•	-	-	
Spell check	•	-	-	Plus word count in Fireworkz
Circular iterative calculation	-	•	•	
Multiple linked sheets	•	•	•	
Built-in functions	182	80	163	
Auto macro recording	-	•	•	
Built-in graphs	30	11	6	
Concatenation	•	•	•	Called Join in Fireworkz
Floating button bar	-	-	•	
Save As... (file types)	5	5	11	
Line of best fit	-	-	•	
Export/import Excel	See note	-	•	In Fireworkz, via PC version
Export/import 1-2-3	•	•	•	
OLE to Impression	N/A	-	•	Fireworkz is integrated to WP
DDE to own graphs	•	•	•	Called Hotlink in Schema 2
Built-in number formats	15	See note	15	Allows user definition
Built-in help	•	•	-	Schema 2 via !Help
StrongARM compatible	•	•	•	
Price ex VAT	£99	£114	£99	All single user
Company	Colton	Clares	Longman	

The art of

Rob Miller reviews one of the newest sound packages for Acorn machines

Decent sound recording software for RISC OS machines has been a bit thin on the ground. There is the admirable *AudioWorks* but further development with this product seems to have stopped. It has been left to Oregan to carry the baton with its new *ProSound* package.

As its name suggests, *ProSound* is a professional audio recording and processing application – basically a program for recording audio into and for playing audio out from a RISC OS computer. It is also capable of changing (or processing) sounds



Speed testing your hard drive

by applying one or more filters or effects to them.

Like many new applications, *ProSound* has been written in a way to make it easily upgradable simply by adding new modules. Computer Concepts' *ArtWorks* and Beebug's recent *Ovation 2* are other examples of this. One of the major benefits of adopting this style of application writing is that it effectively opens up the program to third-party programmers, and hopefully reduces development time and costs.

Oregan plans to offer new modules free of charge to registered owners of *ProSound* via its Web site (http://www.demon.oregan.co.uk/), and a number of them are already available such as *Flange* and *Reverb*. Further modules will be made available as and when they are written.

Sound quality

Even if you have just the standard 8-bit sound playback system on your computer (all RISC OS computers apart from the A7000 and Risc PC 700), *ProSound* processes all audio internally using 16-bit resolution to maintain optimum sound quality. If you have an A7000 or Risc PC 700, or have a third-party 16-bit audio card (*16-bit Minnie*, *Lark* and so on), you can play back any audio at up to 48,000 Hz which is the same resolution used by DAT (Digital Audio Tape) machines.

Presumably if you are using 16-bit sound internally, you would want to hear it played back at the same quality and *ProSound* provides support for a number of third-party expansion cards to do just that. Rather than just have one routine to do the sound play-back, *ProSound* employs a system of sound drivers in order to get the best possible performance out of each card.



The main ProSound window plus the FX directory

Virtually unlimited ....

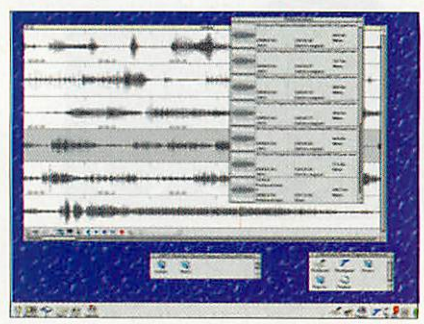
Perhaps the most important feature, and one that many RISC OS users have been deprived of up until now, is *ProSound*'s ability to utilise a hard disc as virtual memory. This automatically means that you are no longer limited by the size of the memory in your machine as to the size of sample you can create or edit.

ProSound supports full direct to disc recording and playback, assuming that you have a hard drive in the first place of course, and is even capable of being used to work a continuous block of CD-quality audio data long enough to fill an entire compact disc (typically around 650Mb) on just a 4Mb machine.

You might for example, wish to record a music program off of the radio and want to get rid of all the annoying voice-overs that they have a habit of putting in. With *ProSound*, you can record (or sample) the whole lot to your hard disc, edit-out the offending bits, and then play back the edited file to whatever medium you have to hand. Of course, this isn't a strictly legal pastime, just an example.

Starting ProSound

All current hard drives are suitable for direct record/playback but the faster your drive is, the more tracks you'll be able to record or play. A small utility is provided which does a quick speed-test of the any hard drives you have fitted. You just tell it what frequency you wish to use and the



Six channels of simultaneous sound

program displays the maximum number of tracks available. The higher the frequency, the less number of tracks that can be used.

The *Fujitsu M1623TAU*, 1.702Gb E-IDE drive I have fitted in my StrongARM RiscPC returns a figure of between eight tracks for a sampling frequency of 73500 Hz and five tracks for a sampling frequency of 48000 Hz. Other makes and models of hard drive will be different, particularly if you have SCSI drives which should be faster.

ProSound allows you to manipulate up to eight tracks of audio at once, with each track having its own unique stereo position and volume level. All eight tracks are mixed together in real time when the project is played back as a whole.

ProSound employs a system of project folders to keep sample files organised and to keep any related data together in one place. It also has the benefit of allowing you to customise the settings on each project rather than just the overall program.

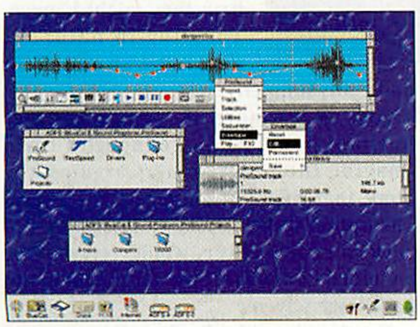
Each time you start a new project, a

The art of Sound

directory is created on your hard drive, into which all relevant data files are stored. These include such things as envelope data, display options and information about any samples stored within the project. If you then go on to add new tracks to a project, the additional sounds and any relevant information is stored within the existing project directory.

Clicking on the *ProSound* icon allows you to create a new project by specifying the frequency, resolution, duration and number of tracks. Alternatively, you can load in an existing sound sample and *ProSound* will determine all the various parameters automatically.

At present, the majority of sample formats are supported and these include Replay, Armadeus, AudioWorks, DataVox, EMR Waveform and Symphony; the PC



Editing an amplitude envelope

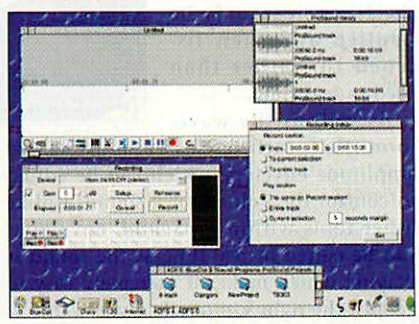
formats of .WAV, .SND, .SOU, .VOC., .AVI, AIFF plus Amiga IFF and Sun/NeXT. Hopefully this list is exhaustive enough to cater for everyone's requirements although like drivers, adding new formats is just a case of adding a new module inside the *ProSound* directory.

Additionally, the program can save out audio data in the above formats, which means that it's quite a useful tool for sound sample conversion. If it encounters a format that it doesn't recognise, you can load it in as raw data and then 'tweak' the various parameters by hand until you get the right noise.

Because current Acorn RISC OS computers are incapable of capturing sound on their own, you will need an additional sampler expansion card to do any sound recording. There have been a number of sampler boards for the Acorn range over the number of years, but the more recent ones such as Irlam's *24i16* and Computer Concepts' *Lark* are more suited for use with *ProSound* as they can record in 16-bits.

Some of you may remember the *Armadillo A616* sampler which came out at around the same time as the original 300 series Archimedes. Up until now there has been no easy way of using it with new versions of RISC OS although according to the manual, you now can with *ProSound.*

Rather than mess about with lots of setting up, *Prosound* automatically detects what sort of sampler card you (may) have fitted in your computer and configures itself accordingly. This means that recording sound is almost as simple as hitting Record.



Setting up ProSound to record

All you need do is to select the right device (for example if you have two types of sampling card in your machine), set the gain level if required, and press Record. There is even a special Rehearse button that will analyse the incoming sound signal and automatically set the Gain level if needed. A further SetUp menu allows you to specify the exact length of the new sample that you record, and if shorter, specify whereabouts in the overall the new sample will be placed.

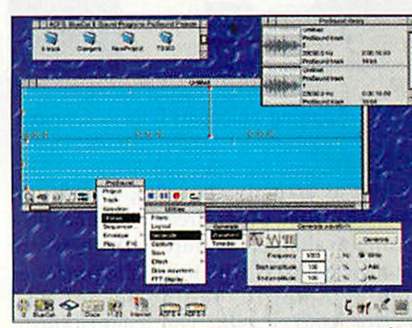
Even though I've been talking at length about needing a sampler card for recording, there is one alternative method of capturing sound, although it does require that you have a specific type of SCSI CD ROM drive.

Now, if you imagine that a music compact disc is really just a load of numbers (which it is), it's not surprising to hear that it's possible to read tracks, or parts of tracks, directly into the computer.

Not all types of CD ROM drive can be used for this and you should check first with Oregan if you are intending on using this method as the only means of sound capture. The results, not surprisingly, are virtually perfect because there is no need for any signal conversion. Perhaps the only drawback is that you are limited to using compact discs to record from, and you definitely require an additional sampler card if you wish to sample any other source.

Finally, you also have the option of creating sounds using a number of utilities built into *ProSound.* A simple waveform generator allows you to produce either sine, triangular or square waveforms with whatever frequency and amplitude you require. Like all sounds in *ProSound*, generated waveforms can be made to overwrite, be added to or mixed with existing samples.

One quite novel utility allows you to generate tone sequences similar to those



Generating a new wave form

made by tone-dial telephones. I'm not too sure of many practical uses for this (of course, I stand to be corrected) although it is a good example of being able to add extra utilities to *ProSound*, purely by adding a new module within the main application.

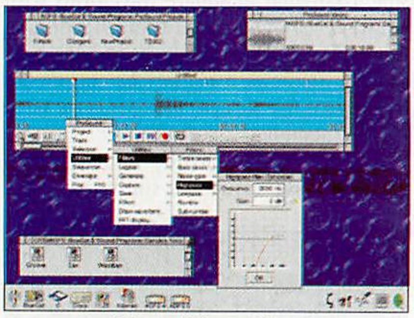
Processing ...

Once a sound has been captured, you can do all manner of things to it. First off, you can edit it, and there are the usual tools such as cut/paste to do this, much in the same way as you might edit text in a wordprocessor. If you are working on multiple samples at the same time, sections can be cut and pasted between them, again in a similar fashion to a wordprocessing application.

The art of Sound

In order to make sample editing simpler and more accurate, *ProSound* uses a system of beat markers which works in a similar way to a grid in a drawing program. A beat control window allows the user to set up various parameters such as Beats per minute and the Beat duration, which then displays beat markers in the relevant places on the main window.

A 'Snap to' feature allows you to cut and paste sections of sample at exactly the right position, right down to the nearest millisecond. Any changes made to the time line are saved when you save out the current project so that they are used as the default when you next load the project in.



Applying a highpass filter to a sample

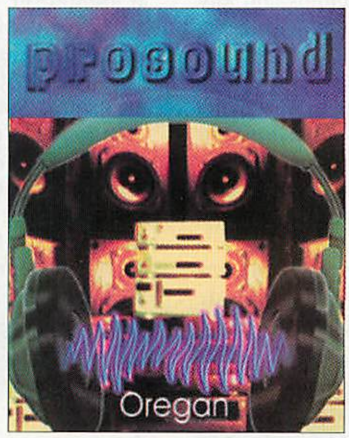
Logical?

As well as actually chopping sounds up, there are three other areas of sound processing available. To start with there are the logical effects which include processes such as Amplify, Fading in/out and Reverse. Most of these you would find in other sound editing programs and, while nothing special, they do precisely what they are meant to, simply and efficiently.

Perhaps the only criticism of this part of the program is that you have to use a menu to get to the tools, and it would have been nice to have the option of an additional toolbox with icons to represent the various effects. This criticism does actually extend to other parts of the program such as the Filters and Effects although it doesn't particularly limit the use of the program in any way.

Filters are any process that removes a particular frequency or set of frequencies from a sample. Saying that though, there are also a couple of filters that boost or add to a sound. The current list of filters available includes Treble boost, Bass boost, Noise gate, High pass, Low pass, Rumble and Sub rumble although new ones are constantly being added in the form of modules.

One slight disappointment is that none of the filters will work in real-time. That is, you can only apply them and then listen to the new sound, rather than have the sound playing while they are being applied.



Finally, there are a number of special effects that can be applied to sounds, including Echo, Flange, Reverb, Tremolo and Vibrato. These are all similar to the standard set of effects that you'd find in a studio, but unfortunately like the filters, can only be applied and then listened to, rather than used in real time.

As well as the waveform itself, each track has an associated amplitude envelope which can be edited to control the volume of a sound. Unlike other tools within *ProSound*, envelopes can be edited in real-time as the sound is playing which makes it extremely easy to get just the right sort of effect you want.

Playback is simple and a set of 'tape-player' icons provide controls for Play, Pause and Stop. A 'Play region' icon plays back just the highlighted part of the currently selected sample and is very useful when editing envelopes, particularly if you also have the loop sample button turned on.

A further 'Play all' option allows you to hear all the tracks (up to a maximum of eight) played simultaneously, effectively providing you with a multi-track mixer. A separate mixer window shows the volume levels of the separate tracks and allows you to change everything in real-time as it's playing.

Sound advice ... ?

So, how does *ProSound* shape up? Well, at first it can seem a little daunting, especially if you've never used any sound editing/recording software before. It certainly helps to know a little about how waveforms work and fortunately there is a part of the manual set aside which explains the basics.

Saying that, it's more than likely that the sort of person who's going to be using *ProSound* will be somebody who already has a reasonable understanding of audio technology, so I guess it's not really a problem. It's definitely one of those programs that has a bit of a learning curve at the beginning, but with a bit of use, becomes almost second nature.

It would be nice to have features such as real-time effects and filters but we'll have to wait and see if Oregan will include them. New Acorn machines such as the Risc PC (and in particular, the StrongARM RiscPC), are more than capable of this so perhaps they might happen. The plug-in nature of *ProSound* should also make this simpler.

Also, a bit more of a graphical user interface would be nice although I could imagine the programmers arguing the point that they just clutter up the screen. The option of being able to just point and click to enable effects would certainly be an added bonus for those lucky enough to have large screens.

On the plus side, *ProSound* does everything that it's meant to do simply and efficiently, and at present, is the only package that I know of capable of recording to and playing back from a hard disc. This point alone makes it an essential purchase for any RISC OS user interested in sound production. The added bonus of plug-in modules makes it doubly so. AU

Product details

Product:	ProSound
Supplier:	Oregan Developments, 36 Grosvenor Avenue, Streetly, Sutton Coldfield, B74 3PE
Telephone:	0121-353 6044
Fax:	0121-353 6472
Email:	support@oregan.demon.co.uk
Web:	http://www.oregan.co.uk/
Price:	£129.95 (inc. VAT)

I wrote that... 2

Mark Moxon catches up with Kiwi programmer Rob Davison, author of *Compo*, *Titler*, and his latest project, PCA

The stereotypical programmer drinks Jolt Cola, never sees sunlight, avoids physical labour like it's going out of fashion and wouldn't know one end of a sheep farm from the other. Rob Davison, author of, among other things, *Compo* and *Titler*, bucks the trend.

Rob works outside all day, tending to his parents' 200 acre farm and successful plant nursery deep in the countryside of New Zealand. It's a far cry from city life – look out of the windows of Rob's house and it's gently rolling hills as far as the eye can see: this is Southland, right at the southern tip of the South Island and it's a long, long way from places like Cambridge. In fact it's around 12,000 miles from Cambridge, about as far away as you can get while still remaining on this planet.

'There are some interesting aspects of working from the country,' says Rob. 'Take my Internet connection, for example. It keeps dropping out because my neighbours have electric fences which create clicks on the line. At least, I think it's that: it's rather hard to tell if it's me or the ISP, seeing as we're out in the middle of nowhere, and ISPs are rather hard to come by round these parts.'

The first real program: Titler

So how did Rob, now 26, get into using Acorn computers in the first place? Well, the same as most of us, starting on a BBC micro, and graduating up through a Master, then an A310, an A5000 and finally the Risc PC. He spent most of his BBC days hacking tape programs to work on his disc system, but the real programming started with *Titler*, the first and, pretty much, the only video titling software package for Acorns.

'In 1988 Lyndon (McEntee, the local Acorn dealer in Invercargill) sold an Arc to a guy in Dunedin who ran a video house but he couldn't get any video titling software for the system,' says Rob. 'Lyndon asked me if I could help out, so I banged together a quick demo and the program grew out of that. Lyndon eventually showed it to Dave Clare, and we had *Titler*.'

Rob spent the next couple of years, programming part time in the evenings, writing a number of add-ons for *Titler*, including a video animation system called *Linker*. Unfortunately these never saw the light of day for a very good reason.

'I got my hands on a Medusa,' says Rob, the Medusa being the pre-release Risc PC sent out to developers. 'At the same time I read a review of a Mac product that did the sort of thing that *Compo* now does and decided that was what I wanted to do. So in January 1994 I stopped working on *Linker* and started writing *Compo*; three months later, on a visit to the UK, I was able to demonstrate a very early version at the Harrogate *Acorn User* Show. After another year the first release was finished.'

The PCA project

Rob's latest project is related to *Compo* in one way: it's a superior version of OLE that will hopefully become the standard way for editors to access embedded files. At present OLE works by, for example, double-clicking a picture in *Impression* with Ctrl held down, which loads the picture into *Paint*, and saving from *Paint* then loads the picture back into your document. PCA, which stands for Plug-in Compliant Application, is much cooler.

'With PCA I identify two programs: the local and the remote,' says Rob. 'Take the example of *Ovation Pro* containing a sprite in a frame and us using PCA to edit that sprite in *Compo*, say. *Ovation Pro* is the local program and *Compo* the remote program. With PCA the local and remote programs are actually using the one and only copy of the sprite, so any changes made to the sprite in *Compo* are immediately shown in *Ovation*. Of course, the operation can be undone with the local application's Undo facility, assuming it has one.

'The PCA specification goes further than just instant updating though. You can also make the remote program put a toolbar on the sprite inside the local program's window, enabling you effectively to edit a sprite in an application that doesn't support sprite editing itself.'

Watching PCA in action is impressive. Rob has written a PCA-compliant sprite editor (called *Cleggy*, because it's a companion for *Compo*), and seeing Rob edit a sprite that's part of a *Compo* file that's inside an *Ovation* frame, with all of them updating in real time... it's just amazing.

Another nice little nuance of PCA is that because there's just one copy of a particular file in memory – be it a sprite, a *Draw* file or whatever – you can edit the same file with a number of applications at the same time. By way of example, Rob can bring up three *Cleggy* windows, all working on the same sprite that's being displayed in *Ovation*: it might not be that useful with three *Cleggy*'s, but imagine being able to edit a picture simultaneously with your favourite painting program and your favourite image processor. Had enough yet?

'It can get quite involved,' says Rob. '*Compo*, for example, can be both a local and a remote application, so you can have compositions within compositions within compositions, and so on. In practice, after two or three levels, the user gets a little confused about which editor is editing what...'

With all these impressive programming



feats, it comes as a surprise that Rob is entirely self-taught. He also programs in BASIC and ARM code, rather than the seemingly ubiquitous C – *Compo* is about two-thirds BASIC, with the rest ARM code – and he invents all his graphics algorithms himself.

'I just cooked up *Compo*'s techniques myself,' says Rob, modestly. 'Opacity, for example, was something I'd worked out for *Linker*, so I just brought it over for *Compo*. Getting the shadows to work correctly through all of the interacting masks and effects was a bit tricky: I'm still not really sure why it works as well as it does...

'The ironic thing is that I'm no graphical artist: far from it in fact. I found creating some of the icons for *Compo* stretched my drawing capabilities to the limit, which is why the idea of something like *Compo* appeals to me so much. Then again, *Compo* is the sort of program that doesn't require huge artistic skill to produce good output.'

Talking over the telephone

It's an indication of the power of communications that a programmer like Rob can provide a product for a company that is about as far away from his home as is possible on this planet. E-mail is the key, but it wasn't always so easy.

'I used to have to use *ArcFax*'s nifty little feature for sending archives over the phone line,' says Rob. 'It was fine when the line was reliable but was much more expensive than e-mail: on the other hand, my ISP shut down its e-mail operation not long ago and re-issued everyone with new passwords to prevent a breach in security.

'That was all right but it took a week for the courier to deliver the password to the farm, so I was stranded without e-mail for a week. That's the price you pay for living in the country: but I wouldn't have it any other way.'

And having seen Southland and the sorts of programs that Rob produces, I totally agree.

• *Rob Davison's home page is at http://www.geocities.com/siliconvalley/7320*

AU

Rob Davison discography

First program

'I wrote a graphics package for the BBC with the 6502 second processor, and it came to about 35K of BASIC. It was horrible, I never gave it to anyone and I don't even have a copy of it any more. No, I'm not sorry that it's not around to haunt me.'

Commercial programs

• Titler: Rob's first big product. Titler is still sold by Clares and nothing has ever really challenged it as the best video titling package for Acorns
• Compo: Rob's second big product, also sold by Clares. An object-based bitmap editor, it was certainly unique when it came out, and still does a hell of a lot that nothing else can do
• PCA: More of a specification than a program, this protocol is impressive to see in action, and will – if there's any justice – become standard in all editors to enable us to OLE our hearts out in real time. For information on PCA, check out Clares' web site: http://www.stcoll.ac.uk/clares/

Public Domain programs (available from Rob's web site)

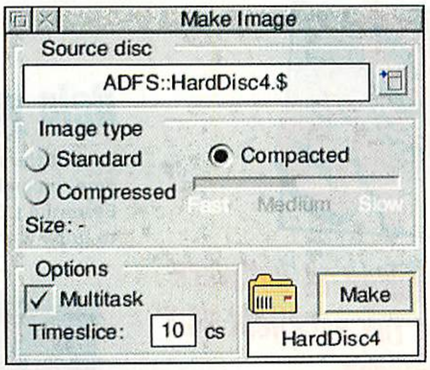
• Window Drag: Allows windows to be dragged without having to find the title bar
• BatchFSI: For batch processing of images with ChangeFSI
• Gamma: Enables you to alter the gamma correction of the screen on a Risc PC
• Trimmer: Trims the background edges of sprites
• HRoller: Horizontal outline font scroller
• TimeCalc: Calculator for... you guessed it... time
• ArcPrompt: A teleprompter, for all you TV newsreaders out there
• Linker: An animation add-on for Titler

Network backup

A RECENT conversation with a colleague about network issues revealed an interesting program which will be of considerable use to anyone who uses a hard disc, including those network managers who backup the user areas onto a random access device like Cumana's *ProTeus* drive or Argo's *Zip* drive.

The program is called *FCFS* (Filecore Filing System) and it basically creates a single image of a disc by reading the data directly from the sectors. It is very fast and can compress the image as it's creating it. Once done, clicking on the image will open a filer window showing the same directory structure as the master. Although the image cannot be written to, directory folders can be opened and files can be loaded in the usual way or copied to another disc.

Individual files or directories can be



dragged into another filer window where they will be recreated as normal read/write files or the whole image can be reinstated into another filer window. At present the main limitation appears to be that it isn't possible to back up just a part of the disc but only all of it. Another feature worth noting is that due to the way in which the software works, it isn't possible to write to the disc that is currently being copied. This is worth noting if thinking of creating a backup at the same time that students may be using the network.

FCFS is shareware and costs just £10 to register from Nick Craig-Wood, 26 Wodeland Avenue, Guildford, Surrey GU2 5JZ or e-mail ncw@axis.demon.co.uk

Exploring Maps

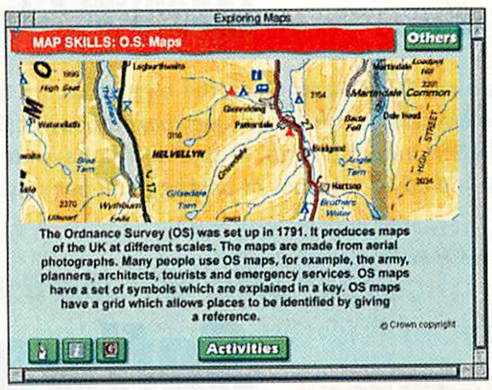
I WANTED to include news of this CD-ROM in last month's BETT preview, but space meant it had to be cut, which was a pity because this is another excellent program from Yorkshire International Thompson Multimedia.

Exploring Maps introduces children to the concept of maps and mapping in a stimulating way. Although aimed at Key Stage 2, lots of material will be useful well into Key Stage 3. Hundreds of graphics, pictures and easy-to-understand text and audio are featured in this interactive presentation.

The program has several sections although the three main ones are *What is a Map?, Working with Maps* and *Map Skills*. Each section gives clear information and provides several activities to test the pupils' knowledge. The sections cover Ordnance Survey maps, aerial photography and natural and man-made features.

There is also a comprehensive A-Z glossary of important map terms, each of which can be heard and the text exported to a word processor. The pack also includes a disc containing the program *TrailSave* which allows the user to control and direct the paths of investigation.

Exploring Maps retails at £59.99 including VAT and is available from Yorkshire International Thompson Multimedia who may be contacted at Powerhouse on 0171-371 2600, fax 0171-371 4099 or by e-mail 106146.1530@compuserve.com



Developing map skills in a stimulating way

Information Technology Room

ASPEX Software's *Spex* is a computer aided design program in which the user works within a given environment. The *IT Room* is the latest environment following from the *Primary Classroom* and *Moonbase*.

As with all the *Spex* environments, the vector graphics are superbly drawn and include a great deal of detail which can only really be fully appreciated when the drawing is magnified or printed on a good full colour printer.

Each environment seems to include more detail than the last, so much so that it can take a significant time to load the artwork.

I would think that more than a handful of users pulling this file down the network will slow things down quite considerably.

Aspex Software may be contacted on (01822) 611060.

Welcome

CONTINUING our look at Acorns in education, welcome to Jim Fanning from the Tideway School, East Sussex. Jim is a history teacher and a dedicated Acorn user, and uses IT as part of his day-to-day teaching. To support his article in this issue, Jim has produced a *Genesis* application which unfortunately could not be included on the cover disc due to lack of space. However the software is available from APDL and Five Star Marketing.

Contacting me

You can contact the Education page by writing to me, Geoff Preston at Acorn User, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to: aueduc@idg.co.uk

A kind of magic!

Colin Rouse visits the world of elves and aliens

Here are two more exciting programs from Sherston Software, helping children learn basic skills in mathematics and language in the primary school. Written by Sandra, Adam and Simon Hosler, they utilise Sherston's adventure type of software to provide a stimulating setting for learning.

The magical world of elves

Aimed at children between the ages of 5 and 7, *Elf Tales* contains two short adventures which aim to develop mathematical skills through a problem-solving approach. In each adventure, the friendly bookworm in the library has an elf tale to tell. The children then enter a magic world as they try to solve the mathematical puzzles in an attempt to help the elves. The children are aided in their quest by some superb graphics, animations, sound effects and digitised speech to help with difficult words.

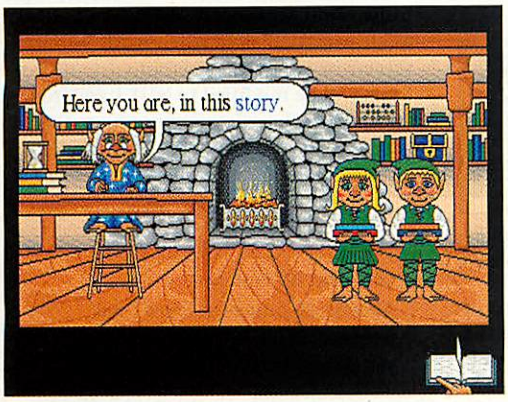
Elf Magic asks children to find the magic statue of the elf king and queen which has mysteriously disappeared from the courtyard in the middle of the night. Magically transported to Jek's cottage, they embark on a series of clues which help them find the statue and restore the flow of magic water.

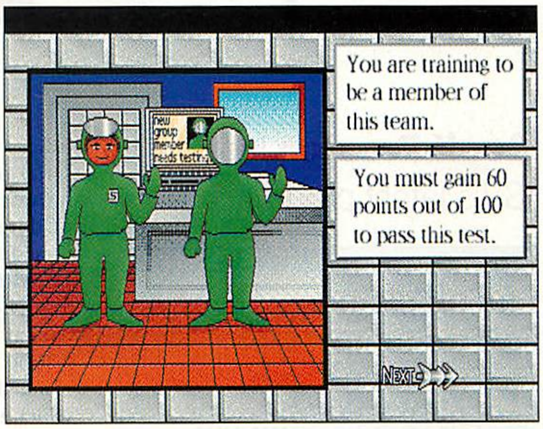
Elf King features a gang of bad elves called the Hairy Gang who have kidnapped the king and locked him in their dungeon. They want all the queen's crowns in return for his freedom! The children, once again, have to follow clues and solve problems as they try and rescue the king.

Elf Tales covers many of the mathematical skills which younger children need to master including: sorting and comparing; time and work with clocks; patterns and sequences in both number and shape; spatial awareness and estimation; number bonds to 10; mazes; simple mapwork and the idea of 'more than less than' as well as encouraging logical thinking, problem-solving, logic and cooperative working.

In both tales, although the work is mathematically based, there are also many opportunities for developing essential language skills such as exploring ideas, describing events, forming opinions, extending vocabulary and reading for meaning.

Can you help the elves?





Join the fight against the *Table Aliens*

The aliens are coming!

The Earth is under seige from the *Table Aliens* who plan to invade and capture the planet. The only thing that can stop them are children who pass the test and join the Special Task Force set up to counter the invasion.

To do this the children must know their times tables. Once installed as members, the recruits must successfully complete the four adventures to repel the invasion and make the Earth a safer place.

Aimed at 8 to 11-year-olds and guaranteed to take the drudgery out of learning tables, the software features four separate times tables adventures, 10 different activities to test knowledge, five levels of difficulty, tables up to 12 x 12 if required and a separate testing facility. Set in a series of exciting challenges, children will try and rid the earth of the Table Aliens.

Supporting materials

Both software packages have a comprehensive user guide which contains many follow-up activities and numerous starting points for work away from the computer. Also contained in the package are photocopiable worksheets for children's use.

The software features a comprehensive page allowing the teacher to select various degrees of difficulty, which table's facts are to be learned and much more. There are also facilities to print screens, return to any part of the adventures and a screensave facility to aid written work.

In conclusion

Both packages present opportunities for learning in an exciting and stimulating way. Used in the classroom, they capture children's imagination and make learning fun, while developing concepts and understanding of maths ideas in a progressive way.

One particularly useful option is the ability to change the level of difficulty thus ensuring differentiation and access for all pupils which can then be supported away from the computer with the worksheets or other activities devised by the teacher.

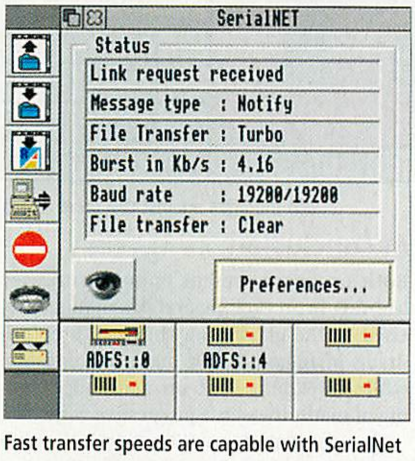
While nothing can take the place of the teacher in the primary classroom, Sherston's *Elf Tales* and *Table Aliens* certainly do help to bring mathematics alive with their stimulating approach to the subject matter. I would wholeheartedly recommend them both to support teaching in this area. Another winner from Sherston! AU

Product details

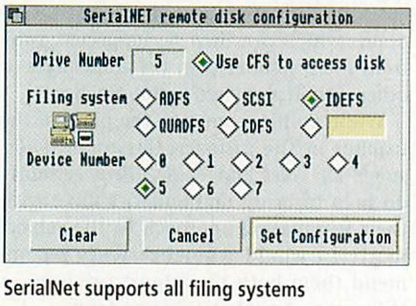
Product: Elf Tales
Price: £32.95 (single user) £49.43 (Primary site licence)
Product: Table Aliens
Price: £24.95 (single user) £37.43 (Primary site licence)
Supplier: Sherston Educational Software
Address: Angel House, Sherston, Malmesbury, Wiltshire, SN16 0LH
Telephone: (01666) 840433
Fax: (01666) 840048
E-mail: info@sherston.co.uk

iSV moves up a gear

Geoff Preston looks at iSV's latest programs



Fast transfer speeds are capable with SerialNet



SerialNet supports all filing systems

If anyone suggests there is no future in writing software for Acorn computers, steer them towards iSV Products. iSV is a small company founded by Aaron Timbrell and his wife who produce quality software and market it at ridiculously low prices and yet are continuing to expand. A recent conversation with Aaron revealed that he has expanded the company by taking on a further six staff and have several new projects under way. Details of those will be reviewed as soon as they're available, but in the meantime, here are three of iSV's latest programs.

SerialNet

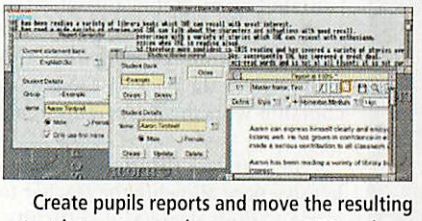
As a network user, I jumped at the chance to review this product. *SerialNet* enables two RISC OS computers to talk to each other via the serial ports. As users of the serial port will know, it is not a particularly fast device for moving large chunks of data around. But *SerialNet* has been honed to be about as fast as it's possible to get without becoming unreliable. Using it, any two RISC OS computers can transfer data at about 12K per second but with two A7000 or Risc PCs the transfer rate is claimed to be in excess of 100K per second which is a very respectable transfer rate for a serial link.

If you are fortunate enough to own two RISC OS computers, the advantage of linking them may not be immediately apparent until you look at what *SerialNet* can do. At its simplest level, it enables files (which includes programs) on both computers to be shared by the other computer.

If you have, for example, two relatively small hard discs in your two computers and have got half your work on one and half on the other, *SerialNet* will allow you to access all your work from either computer. A sensible way of organising files in this case might be to put programs on one disc and work on the other. As with all networking, sharing resources is the name of the game and this extends beyond software. Virtually any peripheral connected to one computer can be used by the other via *SerialNet*. A printer is the obvious example.

SerialNet costs £35 including a 10 metre serial cable and £20 without the cable. Both prices do not include carriage.

Report Generator

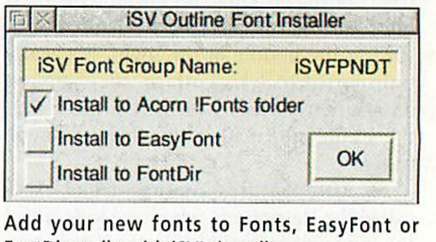


Create pupils reports and move the resulting text into your word processor or DTP package

A couple of years ago I reviewed three or four new report writing utilities. For the year or so after there were no new report writing packages, but now we seem to have come full circle with two new programs appearing in a very short space of time. Following on from HS Software's *NStore*, iSV has released *Report Generator*.

Like most other report writing aids, it creates a file which can be copied into your chosen DTP software enabling reports to be produced on a template common to all departments. The program is supplied with statement banks for English, Mathematics and Science which can be altered to suit the user. It's difficult to separate *Report Generator* from the competition because it does what most of them do. The difference is that it's about half the price at £20 + carriage.

NDT Fonts



Add your new fonts to Fonts, EasyFont or FontDir easily with iSV's installer

iSV has for a long time been known for its high quality outline fonts. Its new generation of fonts called *NDT Fonts* are even better. They are supplied compressed and with an installer which will either add them to the Acorn font folder, to *EasyFont* or *FontDir*.

The *NDT Fonts* have been very carefully hinted and scaffolded so that they appear as clearly as possible when rendered on the screen in small sizes. Gradually all iSV's fonts will be modified to NDT standard and an upgrade for existing customers. The difference is quite noticeable, especially on older monitors. AU

Contact details

Company: iSV Products
Address: 86 Turnberry, Home Farm, Bracknell, Berks, RG12 8ZH
Tel: (01344) 55769

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Jim Fanning takes us through a history project presentation completed by his pupils

"If ever a place deserved to be haunted, this is it !" That comment was made on a bitterly cold February day by a group of Tideway School pupils who were standing among the ruins of what had once been the thriving small community of Tide Mills.

During the Second World War its buildings had been levelled by the British Army, who feared, given the location of the village on the Sussex coast, between Newhaven and Seaford, that it would prove too useful to an invading German force.

Each September there is a school sponsored walk whose route passes through the remains, so pupils were aware of the site but not its history. On a Saturday visit to Seaford, I bought some old photographs of Tide Mills in the 1880s. And that really was what sparked an interest and led to our history department setting up a small computer related investigation into the site.

Using Acorn software

Although our computer network in school consists of PCs, we used Acorn 3020s from the mathematics department. Quite simply, it was the range of software applications for these machines that swayed us. Text could easily be entered using *Edit*. *Paint* was more than adequate for creating and manipulating graphic files. The material from both could easily be combined into a presentation using *Genesis Plus* from Oak Solutions plus the wealth of public domain software available for the Acorn.

Research

The next step was to find out more about Tide Mills. A visit to the local library, with notes taken on an Acorn Pocket Book, provided more information:

Tide Mills in the 1880s



"In 1761 a group of merchants built a 'tide mill' on the coast. At high tide, water would be trapped behind the mill, slowly being released to provide power. A small group of dwellings grew up around it. The mill was leased to William Catt and under his management its prosperity grew. Catt's house can be seen in the 1880 photographs, with pear trees growing up its walls.

In 1876 the village was flooded during violent storms. In 1883, the windmill was blown down. During the first world war, a sea plane base was built there, followed afterwards by a hospital for sick children and racing stables. Village life ceased during the Second World War and from 1945 onwards the remains gradually became overgrown."



Putting it all together using Genesis

This information was word processed. The library also had a copy of the 1851 census for the area and a database of entries relating to the village was created using *!AMFbase*.

At this point pupils were introduced to *Genesis Plus* and a number of lunchtime sessions were spent exploring the program and its capabilities.

Visiting the site

A visit to the site took place next with a Casio QV-10 digital camera being used to record the physical remains. The digital images would be transferred later to the Archimedes using an HCCS digitiser and software. Using the Victorian photographs and an Ordnance Survey map, pupils identified the remains of Catt's house and photographed both it and the village looking southwards to the sea.

An 1880s view of a granary building and sluice gates was 'snapped' from the same location as the original photos. Both colour and black and white images were taken, although the latter were used because pupils felt they showed more detail, were more atmospheric and made for an easier comparison with the original prints.

Assessing the evidence

On returning to school, pupils assessed all the evidence that they had collected. They still had a problem – how exactly were they going to present the story of Tide Mills using *Genesis*? They quickly dismissed a chronological trot through the history of the village. "Too boring", they said. They did think about creating a map of the village on screen, with hot spots that would take the viewer into the past.

Visions

The same view in 1997



"Too confusing", was the opinion voiced. I left them to deal with this and when the group met again one of them suggested that they would explore the village through the eyes of David White. Who?

In 1851 David White was living in Tide Mills and the census of that year gives us plenty of information about his family. So, the plot of the presentation was decided. It would be a guide to the village 'past and present', through the eyes of a former resident. Over the next few weeks, I did little more than pop my head round the door of the classroom. I was eventually given the completed program and asked to check it.

The finished thing

I was pleasantly surprised. The opening screen displayed a photograph of a teenage boy in working clothes, with the words *"My name is David White. I am 15 years old. I live in Tide Mills village, in East Sussex, with my mother and father and three brothers. My father and I work at the Mill. He is a journeyman and I am just a labourer. I will guide you round the village and show you how it has changed between my time and yours."*

Further screens combined original photographs with those taken on the site visit, and interwove census information and historical details in an interesting and unique way. For example, we learn about David White's father and the work he does : *"At the moment his job is not very secure because the Americans are exporting lots of grain cheaper than what we use at the Mill."* There is an original photograph of his place of work, the granary building, with the present day ruins next to it. We are also given more details about William Catt and the kind of 'boss' he was. We see his house 'now and then'.

On another screen, clicking the mouse pointer on the Victorian photographs superimposes a 1996 image, taken from the same angle as the original – a very effective way of showing change. Small personal touches added greatly to the interest of the program. For example, David says that his mother does not like living close to the beach for fear that the village might be flooded (a premonition of future floods and storms). He also records *"My mother told me a ghost story about smugglers who used to sail up the creek with their booty and I did not sleep much for two nights."* A reference this time to past events and especially the year 1785 when a smugglers boat was swept into the mill pond.



In 1883 the windmill was blown down

What the project achieved

Genesis is an ideal tool to work with. It is easy to use, yet can create quite sophisticated stand-alone programs. It also has the advantage of creating files that are compatible with *Genesis* for Windows, so although pupils did not use the PC network to design their program, with very little effort it could be transferred to it. The students who worked on the computer presentation did so outside normal lesson times.

The historical and computer skills they developed go far beyond what could be delivered in the classroom and the end 'product' has certainly acted as an inspiration to others. A great many features of National Curriculum History Key Stage 3 could be found in this small project.

The pupils had 'investigated historical change'; they 'studied a range of historical materials'; they had been helped 'to investigate a historical topic on their own'; they 'selected and organised information'; they 'identified sources'; they 'presented their results using information technology'. The list is long. The benefits of the project do not stop here however. In October, our Year 7 students will pay a visit to Tide Mills. They will make use of the computer files created by senior pupils.

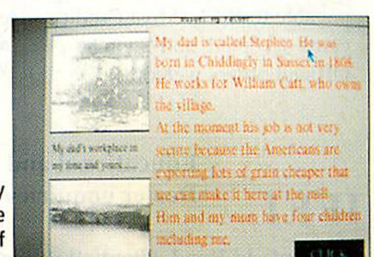
Copies of the *Genesis* files have been circulated to local secondary and junior schools in our area and are also available from the public domain libraries APDL and Five Star Marketing.

The work carried out during the study resulted in our History Department obtaining a grant from East Sussex County Council to explore the uses of authoring programs such as *Genesis* in the teaching of history.

A final word about Acorn

The Archimedes is an incredibly versatile machine. There is no reason why, with its range of specialist educational applications, it cannot sit beside and work happily with its PC counterparts – especially in the use of programming applications where files are interchangeable. AU

of the past



The story through the eyes of David White

A3000 upgrades

Memory

1-4Mb	£85 (99.87)
1-2Mb	£39 (45.82)
(See also the "2nd user" section)	
1-2Mb (upgradable to 4Mb)	£54 (63.45)
2-4Mb upgrade pack	£45 (52.87)
4-8Mb	£175 (205.62)

The above upgrades are all constructed on four-layer boards, as recommended by Acorn. Gold plated connectors are used for reliable contact with the A3000 main board. There are no clips or wires, and no soldering is required (except 8Mb). Full instructions supplied. Some older types of 2Mb board cannot be upgraded to 4Mb, but we offer a trade-in allowance. Please phone for details.

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A range of internal hard disc upgrades is available. The upgrades simply plug into the internal expansion slot. Also suitable for the A3010.

120Mb	£135 (158.62)
170Mb	£145 (170.37)
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RISC OS 3	£39 (45.82)
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(Dealer fitting recommended for the ARM3)

A3000 4Mb RAM £85 (99.87)

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Memory

2-4Mb	£69 (81.07)
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A3020/A4000

Memory

2-4Mb	£74 (86.95)

Hard drives

120Mb	£75 (88.12)
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A400/1

Memory

Per Mb (up to 4Mb)	£30 (35.25)
4-8Mb	£175 (205.62)
RISC OS 3	£39 (45.82)
ARM3 (25MHz)	£129 (151.57)

Hard drives. For prices, refer to the A310 section.

How to order: The VAT inclusive amount is shown in brackets. Cheques made payable to IFEL. Most Credit cards accepted, and Switch. Official orders welcome.

Various

Alsystems SCSI 2	£170 (199.75)
ARM3	£129 (151.57)
RISC OS 3	£39 (45.82)
MEMC1a	£39 (45.82)
MEMC1a (2nd User)	£20 (23.50)
Hard disc cradle	£6 (7.05)
Fan filters (pack of 5)	£3 (3.52)
RISC OS manuals, no vat	£22
Dongle dangle	£6 (7.05)
Chip extractor tool (for eg MEMC, ARM2)	£4 (4.70)
CDFS upgrade for Oak SCSI card	£25 (29.37)

The following item is reduced to clear. Please phone to check availability.

Wordworks	£23 (27.02)

A3010 upgrades

Memory

1-4Mb	£89 (104.57)
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2-4Mb	£75 (88.12)

The 4Mb upgrade is constructed on a compact four-layer board. No soldering is required. Full instructions supplied.

Hard drives

A range of internal hard disc upgrades is available. The upgrades simply plug into the internal expansion slot. For prices, refer to the A3000 section.

RISC PC

SIMMs...

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8Mb	£30 (35.25)
16Mb	£59 (69.32)
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16Mb SIMM to 32Mb upgrade

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(By upgrading your 16Mb SIMM to 32Mb you don't lose a SIMM socket. The original 16Mb SIMM must be returned to IFEL and the type must be suitable - most are. Please phone to check first or ask for our free leaflet.)

RAM packs for upgradable SIMMs

4Mb-8Mb	£29 (34.07)
16Mb-32Mb	£77.50 (91.06)

Each pack consists of 8 chips which simply plug into empty sockets. Instructions supplied, no soldering needed.

VRAM modules...

1Mb	£55 (64.62)
2Mb	£97 (113.97)
1Mb-2Mb upgrade	£65 (76.37)

A310

Memory

2Mb	£59 (69.32)
4Mb	£89 (104.57)
Backplane (4-slot, four-layer)	£49 (57.57)
Fan for above	£8 (9.40)
RISC OS 3	£39 (45.82)
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ARM3 25MHz	£129 (151.57)
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850Mb IDE	£125 (146.87)
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SCSI discs also available.

2nd User

Please phone to check availability.

A3000 1-2Mb	£15 (17.62)
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Spares/Repairs

We carry stocks of most replacement chips for the Acorn range. (MEMC, VIDC, IOC and most memory devices). We can also fit any upgrades and offer a computer repair service.

Educational and quantity discount available. Dealer enquiries welcome.

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VISA

GAME SHOW

Steve Mumford discovers bombs that have a sense of humour



A long time ago, under an operating system not so very far removed from our own, people used to play simple, wholesome games that didn't require sockets stuffed with memory.

One of those games involved a pair of tanks whose occupants, not seeing eye-to-eye, took it upon themselves to fire pot shots at each other. Due to some rather inconvenient terrain, direct fire wasn't feasible and the only hope of victory lay in lobbing shells along a trajectory that would take them over the hills and gullies in between and finish with them landing in the enemy's back garden.

As I said, the original version of the game is somewhat dated. However, as the years have drifted by, the general theme has been updated and expanded and is now available on a range of platforms – you might have heard of a shareware game named *Scorched Earth* for the PC and the recent hit *Worms* is based on the same theme.

As well as a multiplayer mode, the strategic element of the game is broadened by the inclusion of a huge catalogue of incendiary devices. However, there is no such thing as a free tactical warhead and now that you have to pay for weapons, there is less of an incentive to be trigger-happy and careful aiming is a critical part of success.

Tanks

Tanks, written by Rik Griffin and published by Werewolf Software, is the Acorn version of this particularly popular style of game and boasts almost everything you could think of.

Up to 12 players can take part – they can either be human or computer-controlled. Play is supported by both keys and mouse and since the game is turn-based, the players won't be fighting for space round the keyboard.

It's one of those games that's also fun to watch, so anyone not playing can still feel the tension mount. It's perhaps this feature that makes *Tanks* ideal for large groups – you don't need the reflexes of a tetchy snake to play and it's up to you whether to form an alliance with other players or struggle to victory on your own. All this interaction makes for exciting gameplay.

Tanks isn't strictly multitasking, although it does install an application on the icon bar. This front-end program deals with the setting of all the game options before play commences and also provides you with access to the weapons shop and an up-to-date scorecard. Each battle consists of a number of rounds and although the game single-tasks for the duration of each round, control is returned to the desktop after the results of each confrontation have been announced.

Human and computer control

At this stage, even though you might be in the middle of a raging war, it is still possible to edit any of the game options and flick players between human and computer control. So if a member of a team has to depart unexpectedly, the computer can fill in.

The more unscrupulous among you might want to let a computer player rake together a sizeable pile of wealth before sneakily swapping controls on it and running off with the loot. The game is supplied on two low-density discs and is very easy to install on hard disc if you've got one – no hunting for a key disc either; what a refreshing change.

I didn't experience any discomfort playing directly from floppy, although the game displays rendered screenshots in between battles which require a fair amount of disc access. These can be turned off at the main control panel.

After the players have been selected and named and any computer opponents have been added to fill the field, (either select skills to be one of four options from *Moron* to



GAME SHOW

Cyborg or leave its skill to be random) players are given a small wad of cash and it's time to visit the shop.

There are two major sections to browse through – one sells the actual weapons used in the game while the other provides a range of utilities that, although not destructive in their own right, can be used to further your progress. Repair kits, shields, deflectors and teleporters fall under this category.

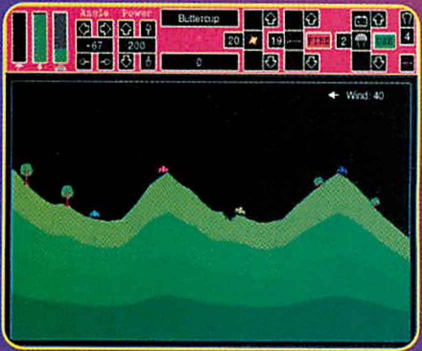
Building up defence

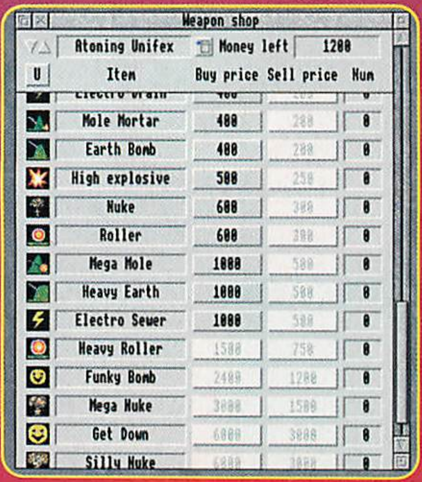
Players start off with a limited amount of money, so won't be able to afford the more expensive weaponry until later in the battle. Exotic weapons such as the laser, one of the unusual 'direct fire' weapons to feature in *Tanks*, don't appear until you've had a good chance to prepare your defences. However, once enough cash has been scraped together, the ability to bring enemies to bear with a stream of armour-piercing shells is particularly useful.

The battle scene is as might be expected – rolling hills and valleys of varying magnitude with trees scattered here and there. The walls that enclose the landscape can have a range of effects, from destroying missiles on impact to bouncing them off at odd angles and random velocities – these can be selected from the game options menu.

Wind speed and air viscosity can also be controlled. From there, it's just a question of picking a trajectory angle, determining the power you want to apply to the shot and firing.

The path of the shot is normally displayed briefly on screen, although this can be turned off for a more challenging game (it's possible to buy tracer bullets to perfect your aim).





Outlandish weapons

When the shell lands, several things can happen. Using a normal shell will result in just a bit of a hole in the ground, which will then settle. Anything no longer supported will fall and if that means a tank begins to plummet to the ground, it's in for some additional damage unless it has a parachute.

However, there are plenty of outlandish weapons to try. 'Nukes' take whole chunks out of the landscape and come in a range of sizes from 'mini' to 'silly'. The silly nuke is definitely worth trying, but make sure it's not going to land near you.

'Moles' dig through the earth when they hit it, bouncing around until they hit a solid wall or emerge from the topsoil, in which case they detonate. Conversely, players can buy earth bombs which expand into huge mounds of dirt when they explode – good for annoying friends and taking them out of action for a while.

Funky bombs explode into lots of small bouncy warheads on detonation and rollers turn into fireballs that, well, roll up and down the hillside until they hit something flammable. If you've got lots of cash, it is possible to buy a multihead missile and send up to seven of the things into the air at once – the missiles will separate in flight and rain down upon the unfortunate victims. Whenever I try this however, they always seem to find their way back to me – I'm sure there's a moral there somewhere.

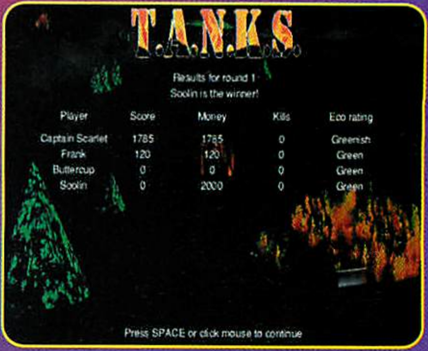
Booby prizes

I particularly enjoyed playing *Tanks* – it's a very nice implementation and Rik has managed to balance the weapons out so they all have their own strengths and weaknesses. The weaker players are rewarded with booby prizes from time to time, giving them a chance to catch up and turn things around. Players can form teams too, so it doesn't have to be 'one-on-one' – they can help each other out and share the winnings.

The 'game save' feature is a lovely touch – after any round, it's possible to save the current state to a file that can be loaded in later. A group could keep a campaign going for any length of time. There are more settings to twiddle with than even the newest video recorders and the team spirit that can build up will guarantee this game's playability for a very long time. Although the graphics could be flashier, *Tanks* is well-presented as it stands. What more can I say, except buy this game now!

Product details

Product: Tanks
Compatibility: Runs on any Acorn computer with 2Mb or more of RAM and RISC OS 3.10 or later. It's fully Risc PC and StrongARM compatible, too – so there should be no excuses.
Price: £25.95 plus £1.50 p&p
Supplier: Werewolf Software
Address: 23 The Spinneys, Bromley, Kent, BR1 2NT
Tel: 0181-467 1138
E-mail: info@werewlf.demon.co.uk,
WWW: http://www.werewlf.demon.co.uk/



NetHack and

Graham Nelson delves into the strange, ASCII-populated world of Angband

First, a bulletin from the wider world of adventure games: The rec.arts.int-fiction competition is over for another year. For those not in the know, r.a.i-f is the Internet newsgroup frequented by game writers.

The 1996 winner is Angela M. Horns, an Acorn owner from the isle of Eigg, for *The Meteor, the Stone and a Long Glass of Sherbet*. It might also be called 'A nice puzzle involving elephants, a dungeon to explore and a very long title.' The player takes the part of an Ambassador being given conducted tours of an Empire, but with a secret mission to find out what's really afoot. Not such an original milieu but all good fun and congratulations to Angela.

In second place was Daniel Ravipinto's *Tapestry*, which reminded me of Frank Capra's film *It's A Wonderful Life*. The player begins in limbo but soon meets the angelic Morningstar. An urban fantasy in the style of Neil Gaiman, *Tapestry* raises troubling issues from the first – confronting the player's mother, neglected and on a life-support machine in hospital, is quite disturbing. Can the player put things right or at least better? The game might well have won but for a slightly linear plot (linear: Jargon word for not being flexible enough).

Delusions, by C. E. Forman came third but is just as good. Even as someone who loses patience easily with virtual reality and cyberpunk fiction, I still appreciated this game. Suffice to say that the player begins as a human scientist projected into the mind of a fish, after which reality begins to break down altogether. Watch out for the 'bathypelagic' darkness.

The stupidly clever entry of the year was undoubtedly *Lists*, by Andrew Plotkin. This game appears tiny but contains the most complex single object ever written using *Inform* – a computer which is fully programmable in the LISP-related language Scheme. The only character is a genie, determined to teach you that language.

And why not? – as Barry Norman would say. These and 20 or so other games are generally worth an evening wasted and are all free if you have Internet access. If not, we may be able to include some on future *Acorn User* discs. Incidentally, *The Wedding* – which was placed second in *Acorn User's* own competition – has done well for players since it was made available over the Internet. *BSE*, our winner, has just joined it.

URLs for those with Internet access

Competition-winning interactive fiction games: ftp://ftp.gmd.de/if-archive/games/competition96

The Roguelike Games Home Page: http://www.win.tue.nl/games/roguelike/

RISC OS "Angband" (Spark archive) from: ftp://ftp.demon.co.uk/pub/archimedes/games/

RISC OS "Nethack" (Spark archive) from: ftp://ftp.uni-stuttgart.de/pub/systems/acorn/acornet/fun/games/

It's easy to speak hack

Imagine meeting an elephant, your mother and a fish in the middle of a corridor. If you feel that @Emf is a cryptic way to describe the event, you probably aren't a regular Hack player.

@ is of course a drawing of yourself: it's where you're at. E, m and f are monsters. In my own preferred Hack game, called *Angband*, E is an Elemental, m is a mold and f a feline. (I've never actually seen an Elemental, but then I'm hopeless.)

Hackers have a preferred Hack game the way alcoholics have a preferred whisky. That is, when serious craving sets in, any brand will do. They speak a language of their own, though it superficially resembles English. ('*Wield ring of Fire Endurance (+7). Give tripe ration to dog. Use auto-roller. Maximise?*') I am frightened of becoming one of them.

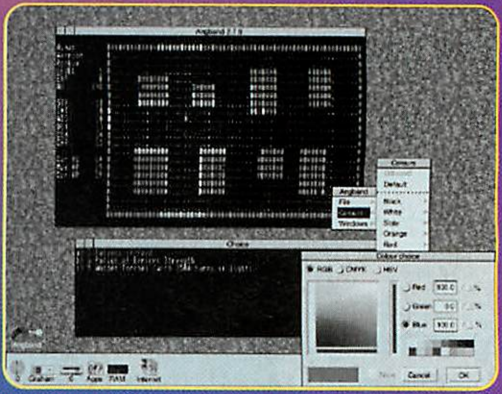
There are many Hack-like games, also called Rogue-like games, in circulation: *Moria*, *UMoria*, *Hack*, *NetHack*, *Rogue*, *Omega* and *Angband*, to name but a few. Some are very old with C source code that has been worked over by generations of programmers. Usually consensus allows one team to take charge of development: the current *NetHack* team has governed for ten years.

From time to time a rival group has a different vision of how Demons ought to behave or some other arcane point of higher-powered game play. Sometimes a different work results. Sometimes two clashing versions go about under the same name, rather as the medieval Church had rival Popes.

Basic rules are common to all. You play the @ sign, an adventurer plundering a dungeon, one subterranean level at a time. Level 1 has relatively toothless monsters and correspondingly lacklustre prizes. A social conscience is best left at home. If it moves and looks smaller than you, kill it. If it looks bigger, run away. If it doesn't move, steal it. Down towards Level 20 are almost invulnerable named wizards or demons. They have an enormous repertoire of spells, move in mysterious ways and can dispose of an adventurer you've been playing for a week with a casual glance.

In at the deep end

Hack games go back to the dark ages of computing and have distinctive character graphic displays. Each individual person or item is represented by a single ASCII char-



Slay

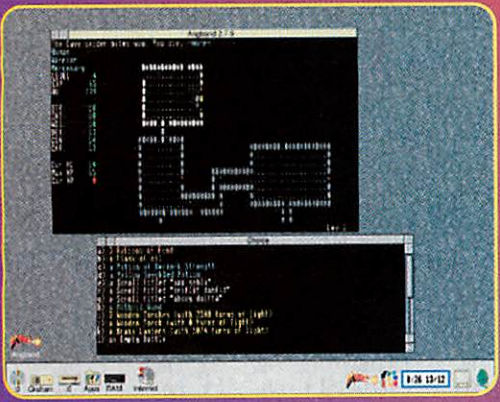
acter, though modern games allow themselves colour.

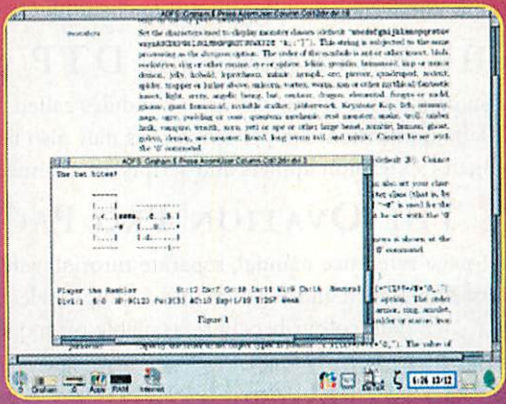
The maze layout of dungeon rooms and corridors looks good but somehow the letter b is less than convincing as a basilisk. Really good *Hack* players (such as I am not) are expert at interpreting the display, like a submarine's sonar operator – this is a cloud of bees, that is a potion, there goes a floating eye. This type of game trains players to be experts by killing them until they become one themselves. My first five *Angband* adventurers each died with a score of 0 experience points at the hands of some truly pathetic monster – a patch of brown mushrooms, say.

At this point I twigged it might be better to wield my *1d7* short sword rather than carry it about in a bag. This meant pressing 'w'. Just as every ASCII character might turn up on the screen, every key on the keyboard does something. (For example '}' is the key for '*rub the inscription off something*'.) I might say that *Angband* is considered a simple, spare game by some.

The fascination comes from the vast number of rules and the surprising number of things that happen very rarely. Be careful not to be pushed down a staircase while cursed to wear a ball and chain! Be sure to write the sacred word '*Elbereth*' on the dust beneath your feet. Never use a Ring of Three Wishes to ask for the Amulet of Yendor (you'll get a fool's gold imitation).

Hack addiction is a serious problem in our society. Some *Nethack* devotees keep calendars marking full moons to remind them when to play. (*Nethack* calculates the







current phase of the moon from the computer's system clock to decide how lucky the player is.) Horror stories are rife. I have seen someone start a quick game before breakfast and finish at about 1am, having eaten nothing all day.

Captain Kirk in Moria

Where did this weird subculture come from? In the summer of 1911, between school and university, Ronald Tolkien took a walking holiday in the Swiss Alps. His party of 12 climbed the Kleine Scheidegg pass, below the forbidding Eiger glacier. It was a sight he could still vividly describe 60 years later. By then, he had become J.R.R. Tolkien, his walking party had become the Fellowship of the Ring and the Eiger was Mount Caradhras.

In the book *The Lord of the Rings*, malevolent mountain weather forces the Fellowship to pass underground through the dungeon of Moria. In this chapter – Tolkien's most atmospheric – a Ranger, some dwarves, hobbits and a Wizard are pitted against goblins and a balrog in an oppressive maze of caves.

Such was the basis for the fantasy role-playing game 'Dungeons And Dragons' (though the Dragon comes from Tolkien's other readable book, 'The Hobbit'). D&D, as it's generally known, imitates Moria with a vast range of rules. There are hundreds of possible weapons, magical items, spells, character classes (like 'Ranger' and 'Wizard'), monsters and treasures. Ideas and rules from D&D are laid into Hack games like central heating.

I sometimes wonder what computer games would be like if Tolkien had gone boating on Lake Thun instead. *Rogue*, *Moria* and their descendants would be quite different. They do have one other unexpected ancestor: *Star Trek*, not the TV show but a dismal mainframe computer game of the early 1970s. An eight by eight grid of ASCII characters represented our galaxy, with symbols meaning Klingons, stars and black holes.

Playing under RISC OS

Hack games still use such primitive graphics partly for fun and partly because they circulate in C source code. They've always been a programmer's playground, with results like *Rogomatic*, an ingenious program that plays *Rogue* for you. But ready-compiled executable versions can be hard to come by, especially for RISC OS.

The best I know of is Kevin Bracey's desktop *Angband*. For better or worse, *Angband* is more distilled and simpler than *Nethack*. But then again, Inland Revenue tax law is simpler than *Nethack*, which implements five varieties of fruit, Samurai, archaeologists and the kitchen sink. AU

Dave Acton and **Dave Lawrence** present the results of the Circle Challenge plus more doodles and graphical ditties

star info

Slippery Skidmarks Batman!

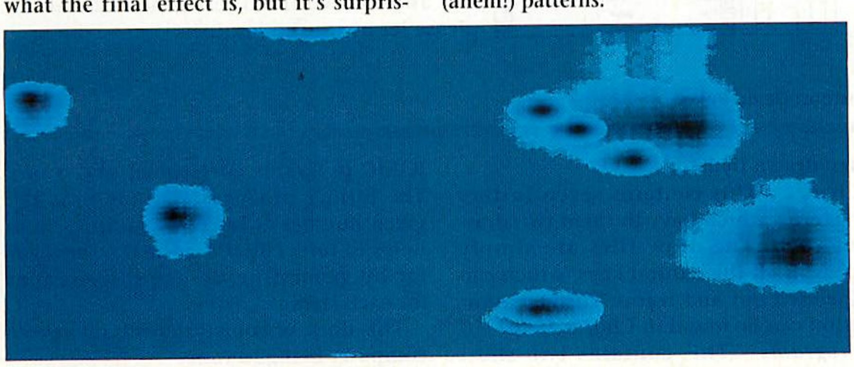
Author: Mark Adcock



SKIDMARKS and *Slippery* are two excellent examples of the power of old *info favourite RECTANGLE FILL TO – that old staple of many a Vibism from the past but this time wielded deftly by Mark Adcock. *Skidmarks* draws a number of coloured 'tyre track' using rotated rectangles and then 'shatters' the image using RECTANGLE FILL to block copy areas of the screen. It's not obvious what the final effect is, but it's surprisingly, um, surprising.

Slippery draws a kind of oil slicky thing and for some reason reminds us of O-Level chemistry lessons (what are those?), lycopodium powder and beakers of water. The program will run by itself quite merrily plotting shaded circles at random points around the screen.

Alternatively, take control with the mouse and produce more 'controlled' (ahem!) patterns.



Hamster jam

Author: The Mad Hamster aka John Collins



Apparently *QTM-Dancer* has been submitted by none other than 'The Mad Hamster', although we believe his real name to be John Collins.

As the name of the program implies, a copy of the *Queue The Music* module and a suitable piece of music to which the dancer can, er, dance are needed.

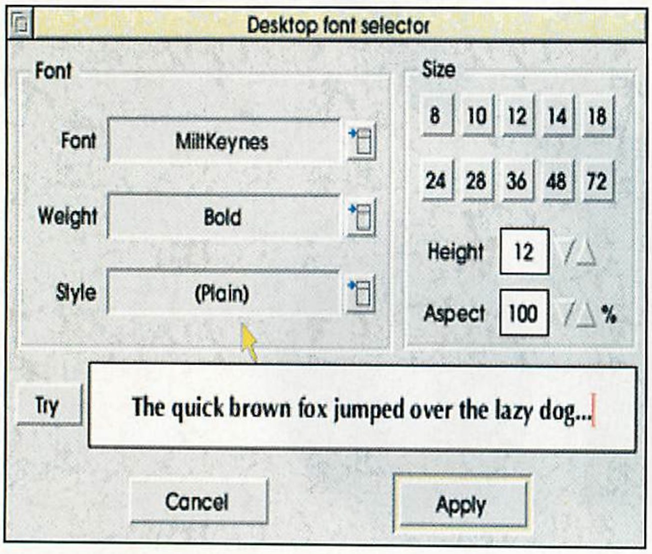
Load the module and a tune first, then start up the program by double clicking on the icon.

You will be greeted by a boogying stickman who passes more than a vague resemblance to Punt & Dennis' sad dad.

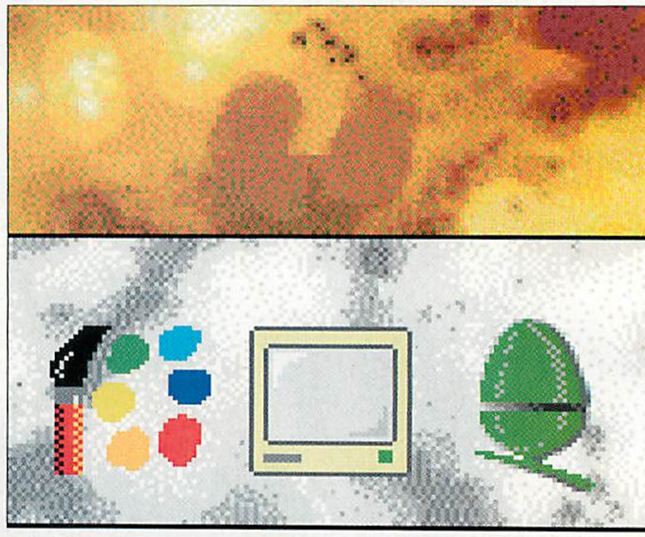
By the way, for those with long memories who think the stick chappy looks a tad familiar, the original non-dancing version was provided by Mark Hobson way back in May 1993.

Back to font **Author: Henry Morgan**

DESKFONT allows the choice of the desktop wimp font – but only with RISC OS 3.50 or later. Ahh, you say, can't I just use *!Configure* like always? Well, yes, you can, but *DeskFont* also allows you to pick the size and width of the font, and if that isn't enough, it also provides a natty little preview of the chosen typeface – always handy before changing to ZipfChutney.Extra.Illegible and not being able to make anything out!



The dog's **Author: David Llewellyn-Jones**



IN THIS, the second of two alternative desktop schemes, we visit the timeless majesty of Jackson Pollock. The backdrop of David's tribute to the great man is truly, er, yellow. Imagine, if you will, what the result of frog-spawn vindaloo and eight pints of heavy would have on your aunt's spare room carpet. In contrast to this, the window furniture is surprisingly restrained, although a slight russet tinge is evident.

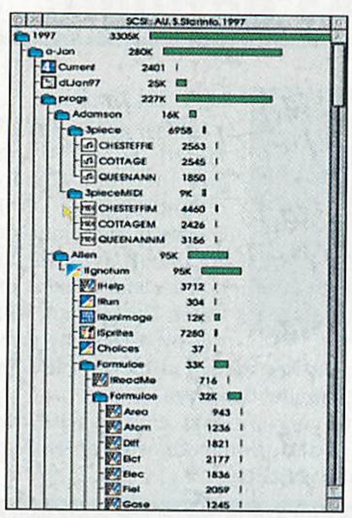
Can anyone match DL-J's offerings? Leonardo Da Vinci directory viewers? David Hockney task switcher? Damien Hirst filer icons?

Tree time **Author: Barry Wickett**

BARRY Wickett's *Coeden* application emulates some of the functionality of the good old file manager from Windows 3 (or Fly Manager as we call it). If we tell you (what Barry told *us*) that *Coeden* is Welsh for tree (Barry lives in Wales, y'see) then it starts to make sense.

With *Coeden* sitting happily on the icon bar, either drag a directory to the icon or drag the icon into a directory viewer. Either way a window will appear (not necessary straight away depending on the size of the directory!) showing all files and directories in hierarchical form. From this window, it is possible to run any of the files by double-clicking them. This is performed with a Filer_Run, so holding down Shift will load the file into a text editor as expected.

By default, the size of each object is shown



– note that for directories this is the counted size of each file within the directory, not the actual space the directory uses up on the disc. Showing the size can help track down where all the space on the hard disc is being used.

It is possible to disable the size display and also to hide the files (but show the directories) by changing the options in the icon bar menu.

However, any choices made here only affect subsequent scans – currently displayed windows are left as they are. It would be nice to be able to collapse branches of the tree in a windows-like fashion and also to be able to treat the window in a more filer-like way, e.g. being able to delete, rename, etc.

If anyone would like to make *Coeden2*, please let us see the results!

Tuner sandwich **Author: David Baker**

THIS application contains a number of files which may be of some use to guitarists. When double-clicking on the *!Guitar* icon three directories appear:

• *BlankTab* – Blank tablature paper in *Draw* format for bass and guitar. This can be printed out and so gives neat and quick tab paper rather than scrawly lines when drawn by hand

• *Chords* – This contains seven further directories which have in them two draw files each. The draw files are simply chords in all the natural keys, which can be printed out and learnt. Further information can be found in Chords.Help

• *Programs* – This contains two short BASIC programs, *Metronome* and *Tuner*. The former produces a steady beat at a given number of beats per minute. *Tuner* helps to tune either a normal or bass guitar by generating the appropriate tone for each string.

This does, of course, depend upon your computer being in tune.

Blue Peter, er, Keith

Author: Keith Owen

13-YEAR old Keith Owen of Bromsgrove has the blues, and has kindly passed them on to us. They are of the 12-bar variety and come in *Rhapsody 3* format. The original title of the piece is apparently *"Friday 13th blues"* and the second verse goes:

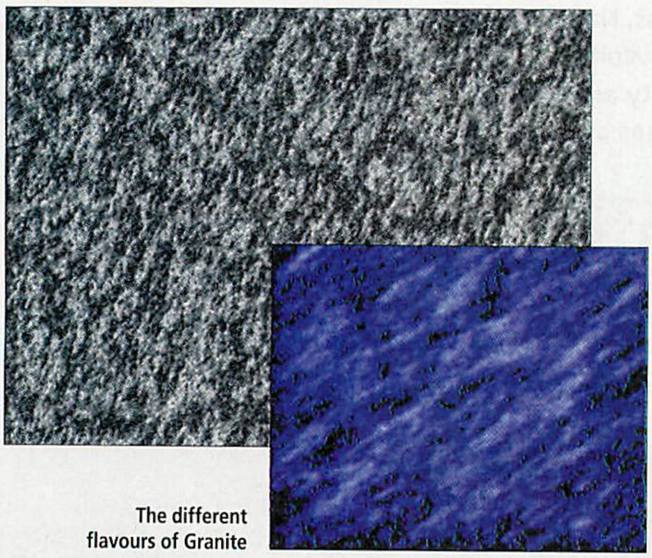
I lost my goldfish
I don't know what to do (x2)
I couldn't afford a funeral
I had to flush it.

Great rhyme. Fortunately, Keith wisely avoided including the lyrics in the final product.

The tune was originally meant for part of his key stage 3 course work, for which we trust he received good marks.

Great balls of... Granite?

Author: Edward Smale



The different flavours of Granite

IT'S QUITE amazing how many natural phenomena can be recreated with nothing but a bunch of maths and quick wibble with a barrel shifter. Edward Smale must have been impressed with Jan Vibe's *Granite* prog from September 1993 because he's sent us a machine coded update version. (Isn't it even more amazing, that although The Man Himself hasn't got a graphical excursion this month we've managed to mention the name Vibe twice already!)



***Granite* comes in a number of flavours: *Granite1* – a straight conversion of the original. *Granite28* – a hi-res version of *Granite1*. *Granite6* – a more bluey, smudgey effect that is almost cloudlike rather than rocklike. *Mutli_Grnt* uses a number of suitably cryptically named parameters to produce a whole mass of different rocky effects.**

Also from Edward is a spherical texture mapper. Run the *!Globes* application and select with Big, Normal or Small. You can provide a mode 13 sprite but if you don't have one to hand simply select the Granite option and a strangely familiar pattern will be generated. The program runs quickly because all the positions are pre-calculated – a useful trick if using a slow processor. Edward's three setup programs (for the Big, Normal and Small globes) are supplied to have a look at, but they do not need to be used to run the *!Globes* application.

One for the rodent

Author: Richard Harker

A quick mouse oddity now. Press F12, enter BASIC, type MOUSE-STEP 506 and then *Quit. Astute readers may be able to guess what happens.

Not so astute readers may have already written sizeable applications to achieve the same effect. Thank you Richard – any similar desktop tricks most welcome.

Rowe's column

Author: Barnaby Rowe

THERE'S NOT much to say about the latest Barnaby Rowe digital symphony composition, *Sub-Sonic*. We liked it because of its bizarre intro sequence. We've just received a communication from Mr Rowe's underground music bunker – it reads as follows:

"This piece of music was written during the start of the long summer of 1996. The tune starts off with a sampled rhythm, accompanied with a bass drum, which gradually increases in tempo and pitch until it can go no higher. Following this, a 'late '80s/early '90s/thousands of people in a field' chord sequence and rhythm blasts into action. The classic scream of 'ACCCCCIIIII-IEEEEEEDDDDD!' introduces the main and final theme of the tune which loops (unnoticeably) across eight patterns, to the listener's delight, I hope!

"The music is just 106K and is worth that much of anyone's disc space. It can be played in *Digital Symphony*, *Flux* or any such like player. Enjoy."

This leads neatly on to a reminder about last month's note regarding disc space. If you're going to submit music to *info, please keep file sizes down as much as possible as anything over 100K is unlikely to be included. Also, to stand out in the crowd, a good bizarre intro, sound effect or banjo solo is likely to impress us more than yet another bog-standard generic tracker. We are MIDI friendly in the *info office, but again, keep the size down and the content up!

This has been a partly political boredcast on behalf of the pyjama party.

Doing the rounds

WAY BACK in that dark and mysterious period of history some refer to as 1996, we issued a little challenge – to come up with a program, ideally quite a good one, to do its business solely by plotting circles. The name of this quest was apparently the "Circle Challenge" although the history books contain no clue as to why it was so titled.

Many brave souls put their programming credibility on the line and, risking life and discs, sent us samples of their wares. We were duly impressed, so much so that the victors in this mighty challenge will appear over two issues. This month, four circular questors show us what can be done in BASIC with a few CIRCLE FILLs and the like. In March it will be the turn of the machine-code freaks to strut their stuff.

In the way only adjudicators can, we have awarded four small prizes in the BASIC category. Equal third place goes to **Jonathan Balls**.

With a true spirit of optimism, Jonathan entitled his entries *Bad, Awful* and *Worse*. In fact, although *Worse* was pretty awful, *Awful* was not so bad. Quite good in fact, and earns its creator a small quantity of cash and a square millimetre of cover disc space and the untold fame that accompanies it. *Awful* draws one of those twisting tubular affairs, reminiscent of a Jan Vibe prog of times past. Essentially, a little ring of circles follow a lissajous-like path, turning as they go, while the palette is cycled through reds, oranges and yellows. The result is somewhat fiery.

Another third prize goes to **Nigel Stoner** who may get something of a surprise as he didn't actually enter the challenge! Among his various submissions (including the barf-inducing *Lavalamp* which will appear soon) was a simple little number called *Bubbles*. This he described as 'a glass of fizzy blackcurrant'. Since it met the criteria, we cheekily included it in the challenge. The 3D effect works very well, largely because of depth-cueing – the use of fainter versions of colours for bubbles near the back. To have even more bubbles simply increase the value of the variable lines% – methinks this program may have evolved from another!

Second prize goes to **Keith Atkins**, another name familiar to regular readers. Like the winner of the BASIC category, Keith supplied a whole host of entries and three diverse examples feature on the cover disc. *Juggler* is not perhaps as accurate a demonstration of the art of juggling as Nick Craig-Wood's program from many moons ago. However, authenticity (and indeed gravity) aside, it is quite fun to watch, particularly the two 'hands' lovingly rendered in circles.

Spring is a vernal extravaganza, graphically illustrating the processes that are about to begin in our gardens. Those of us living downwind from Sellafield at least.

Finally, *What?* is a puzzle in circular form. We forgive the inclusion of some text since the important part of the demo is done with circles. The idea of the puzzle is to guess the rules governing the motion of the circle. Pressing T causes a trace of its path to be shown, although this will probably be of little assistance. When finally giving up, press R and all will be revealed. If your guess was even close then you too are worthy of receiving a small prize. But there isn't one going of course.

When the cycling starts it is not the usual one-way affair, but a pulse, such that the worms ooze in and out of the screen...

There can only be one winner of course, except when there are several perhaps. Just one in the BASIC category though, and it is none other than **Rob Jeffs** of Wimborne in Dorset. He sent us five progs in all, again demonstrating a wide range of 'solutions'.

Jellyfish and *Jellyfish2* are not as similar as you might expect. The first shows a mollusc-eye view of one of those spineless sea-dwellers and it swims up to the surface. Press Space to generate a fresh marine coelenterate at random. By the way, jellyfish do look like buttons don't they?

Jellyfish2 is a colour cycling ditty which, in the words of the author 'won't win any awards'. None apart from the Jacques Cousteau award for the prettiest but least jellyfish-like jellyfish simulation at any rate.

Bubbles works on similar lines to Nigel Stoner's demo, but here the bubbles swirl in a whirlpool kind of way, popping occasionally to be replaced.

Tilt (which 'sounded better than space worms' apparently) uses pronounced depth-cueing to give a very strong sense of depth to the two orbiting wormy things. Again, plain old BASIC circles are the mainstay of the prog.

Finally, and the piece of resistance, is *Pulse*. We get a lot of colour-cycling demos into the office and most use changes in hue so violent or cycling so rapid as to generate headaches, or even seizures, all round. It is therefore a great relief to see a demo that is more subtle in its effects, and Rob's *Pulse* is a fine example of one.

Two sets of worms – worms with bulges along their length mind – are plotted around the centre of the screen. The colours used are simply from a black to red scale and the direction of them alternates from one worm to the next. When the cycling starts it is not the usual one-way affair, but a pulse, such that the worms ooze in and out of the screen with a particular unpleasantness. An excellent effect, worthy of a winner.

Watch out next month for two of the best machine-code entries. In the meantime, why not try your hand at this month's quest...

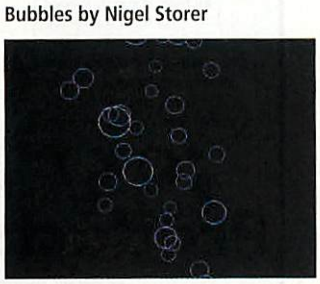


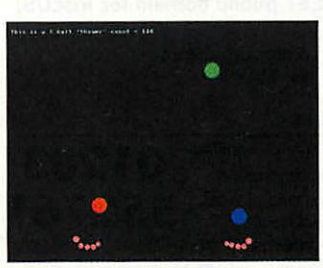
Awful by Jonathan Balls

The winner: Pulse by Rob Jeffs



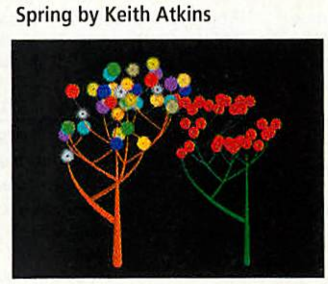
Bubbles by Nigel Storer





Juggler by Keith Atkins

Spring by Keith Atkins



Cloud challenge

YOUR TASK this time is simple – to come up with a program that best simulates clouds. They may be animated or static, lifelike or 'cartoony'. As a starting point, have a look at Daniel Mossop's BASIC program from last month's *info.

Write in any language, but wise-guys take note – if using Perl or something equally obscure, include some executable code so we can run your entry! As this is a challenge and not a competition as such, we'll wait and see the range of entries we receive before deciding how many to include. If, like the circle challenge, a good selection are sent in, we may carry them over a couple of months.

The closing date for programs is February 21st, and the best will appear in the May issue. As with all submissions, please send them to *info at the usual address, marking the envelope *Cloud Challenge*. An SAE will ensure your disc is returned and please put the standard text file on the disc containing your name, address, telephone number, e-mail address etc, as well as details of your entry. You can submit as many programs or versions as you like, and indeed any other programs you'd like to see in *info. E-mail the entry if you prefer – details are in *quit.

The judges' decision is final and we will favour the prettiest, fastest, cleverest, grooviest and weirdest solutions. Happy cloud-making!

The Ski's (not) the limit

PETE MEADS was quite pleased with his score of 1066 playing Roddy Graham's classic one-liner *Ski-Down*. However, his seven-year-old son Anthony discovered the in-built cheat mode. By holding down the keys A, C, O, R, N, U, S, E and, er, R again, while carefully moving the mouse in small (anticlockwise) circles, the deadly Xs never appear in the leftmost column. Well, okay, they never appear there anyway. Just park your I over on the left and watch those points mount up – the Meads achieved 38400 at which point the skier doesn't move anyway apparently, presumably frozen to the spot by the icy alpine winds.

Thank you to Pete and Anthony, and to Michael Marshall and Paul Theobald who also spotted the deliberate mistake. The latter also supplied a hat, lovingly rendered in punctuation marks for consumption by those parties doubting high scores could be achieved. We have taken a modest bite and have passed on the remaining characters to the original author. Incidentally, Mr Meads points out that changing the RND(17)+1 to a RND(18) ensures the fun is once more limited.

Tell me SWI...

Author: Jonathan Rawle

JONATHAN Rawle has sent in a superior version of a program we carried some years ago. The author explains what it's all about:

"*SWIconv* is a useful tool for any BASIC programmers who use software interrupts (SWIs) in their programs. SWIs are instructions to the operating system and are prefixed in BASIC with the keyword SYS. The command itself can either be in the form of a string or a number.

"It is far more convenient for the programmer to use the string version as these are easily remembered and make programs easier to follow. But the strings take up more memory and disc space than their equivalent numbers and execute more slowly.

"SWI converter solves this problem by allowing the programmer to enter a string and convert it to a number or vice versa. To use the converter, install on the iconbar as usual. Click to open the main window. Use the arrow keys to move the caret into either the decimal number, hexadecimal or text string icon and enter the command. Press Return or click OK and the SWI will be converted into the other two forms. Either continue like this or use the arrow icons to move through SWIs in numerical order.

"A second, and rather more useful feature of SWI converter is the ability to convert all the SWIs in a program automatically. To use this facility, simply drag the program icon over the iconbar icon or the window. Another window will open. Use the "destination" part of the window like an ordinary save box to indicate where the converted program should be saved (drag the icon to a directory display). Use the radio icons to choose which types of SWI should be converted to which and click OK. After a while, the new program should be saved.

"Note – it is not a good idea to save the converted program on top of the old one. The new version should be tested before the old one is deleted. If the original program had its SWIs in the form of numbers, and they are converted to text, it may make some lines too long, and conversion will fail. If this happens, split the long lines and try again.

"*SWIconv* will only convert the SWIs prefixed with SYS in BASIC programs. It will not convert SWIs in assembler. Quit the program from the iconbar menu as usual.

*QUIT

As always, we welcome submissions of all shapes and sizes – applications, quick tips, graphical ditties and even music. Send them all to:

*INFO, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP

or, if your submission is **100K or less**, e-mail us (including your real address please) at:

austarinfo@idg.co.uk

You needn't include a letter but **please put your name, address and program title on every disc** and include a text file containing your name, address, disc contents and program details. Extras like saved screens, drawfiles, examples and background information are both things of beauty and joys forever. An SAE will ensure your discs are returned. *info submissions only please. Cover disc space is limited so small progs, music files etc are inevitably more appealing.

Compatibility table

Program	RISC OS 2	RISC OS 3.1	RISC OS 3.5+
Coeden	No	Yes	Yes
Globes	No	Yes	Yes
Guitar: Metronome	Yes	Yes	Yes
Giutar: Tuner	Yes	Yes	Yes
Pollock	No	Yes	Yes
QTMDancer *	No	Yes	Yes
SWIConv	Yes	Yes	Yes
WimpFont	**No**	No	**Yes**
Juggler	No	No	Yes
Spring	**No**	**Yes**	**Yes**
What?	No	No	Yes
Awful	Yes	**Yes**	**Yes**
Bubbles (Jeffs)	Yes	Yes	Yes
Jellyfish	**No**	**Yes**	**Yes**
Jellyfish2	Yes	Yes	Yes
Pulse	Yes	**Yes**	**Yes**
Tilt	Yes	**Yes**	Yes
Bubbles (Stoner)	Yes	**Yes**	**Yes**
Skidmarks^2	Yes	Yes	Yes
Slippery!	**Yes**	**Yes**	**Yes**

*** Needs QTMPlayer**

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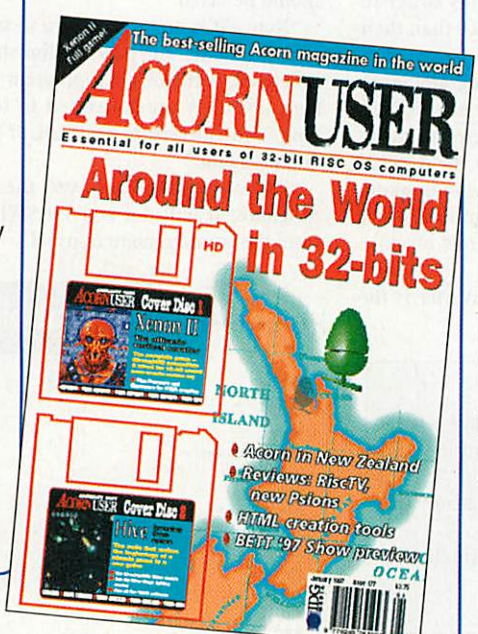
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Serial input output board

Mike Cook presents the first part of his new project

Here is an interface board with a difference – it is intelligent. That is to say it is an interface with a built-in embedded processor. It came about as the need to upgrade an old project for use on some Macintosh computers but it turns out to be useful for any computer.

Back in the February 91 issue of *Acorn Computing* I designed a parallel input/output board that could be attached to the serial port. Basically it consisted of a UART and circuitry to make it auto-echo, that is whenever it received a byte from the computer it sent one back.

I used it at the university to teach interfacing to both undergraduates and postgraduate students. The problem is that the UART I used in the original design was no longer available and also I ran out of printed circuit boards. Therefore, I decided to completely redesign the project using a special chip I had been experimenting with.

This is the PCF87C750, from Phillips, which is a complete computer system. It contains some EPROM, RAM plus 19 input/output pins all in a 24-pin package. It comes in two versions: the OTP (one time programmable) and the reprogrammable. The only difference is that the reprogrammable version has a quartz window in it so you can erase it with ultra violet light – oh and it's four times the price. This looked a perfect candidate for the replacement interface as it was much cheaper than the chips on the original system.

The other thing that clinched it was that a development kit was available at a very modest price of just £70. This board can be used as a simulator, emulator and programmer as well as having a software compiler and debugger. The simulator is software that pretends to be the chip, driving the outputs and reading the inputs just like a real chip.

The £70 development kit also includes two large manuals with information about this chip and its associated 8051 family. It is available from Farnell as order code 485 068 if you want to delve into this sort of design.

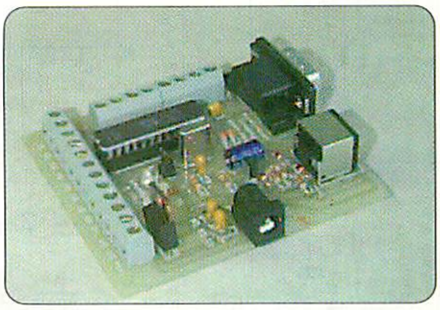
However, the beauty of using the embedded computer approach in a design is that it isn't necessary to delve into the computer architecture to make something – just purchase the programmed chip and use it like any other component. The only downside to that is there's only one supplier – me – see the side panel for further details.

I wanted to make something completely compatible with the old board but capable of being much more flexible and I think I have succeeded. It is designed to work in two modes, mode 0 like the original board and mode 1, a flexible command mode. The idea was that 16 of the chips lines be used for the input/output ports with two lines used for the serial input and output, leaving just one spare line.

With that line I wanted to do two jobs: first it had to *select* the mode it was in and second I wanted it to *indicate* the mode it was in. I came up with a cunning wheeze to make it do both jobs. The lines on this computer chip can be used as an input or an output in rather the same way as those on my IIC interface. That is, if wanting to use them as an output, just write to them, but to use them as an input, first write a logic one to the bit and then read it back.

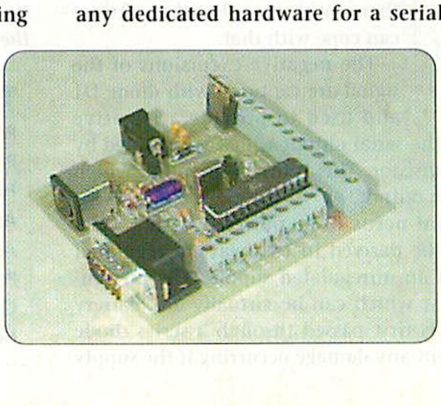
If you read back a logic zero you know something is pulling it down. Therefore, I arranged one end of an LED to go to the positive supply through a resistor and the other end to the LED to go to the I/O pin. In this way the program could control the state of the LED and so it acted as an output. I also wanted it to control the mode as well. Therefore I arranged a mode select link to go from earth to this line.

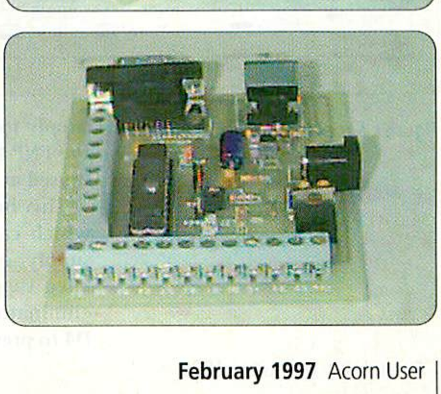
When the link is made, the computer will read a logic zero on the line and so go into mode zero at the same time current will flow through the LED illuminating it. When this link is removed the computer will read this bit as a logic one and so go into mode 1. However, the LED would then be off giving no indication the board was powered up.



Therefore, in mode 1 the program constantly checks the state of this line while putting an alternate zero and one on it. The result is that with the link unmade, that is mode 1, the LED flashes and, with the link made, the LED is on permanently. Thus the LED does the job of telling the mode and also if the board is powered up.

Now the PCF87C750 doesn't have any dedicated hardware for a serial





Serial input output board

interface so in order to implement one we have to resort to "bit banging". That's an old technique where software is used to read and write an input and output pin to make it transmit and receive serial data. The problem with this is that it's not easy to do the two jobs simultaneously, but fortunately we don't have to, we can make do with half-duplex communication.

The low cost version PCF87C750 chip runs with a 12 MHz clock although for a higher price there are ones that run up to 40 MHz. That might sound quite fast but most instructions take 12 or 24 clock cycles to complete, so that works out at 1 or 2 uS per instruction which is just a bit slower than the old BBC B.

Nevertheless that is quite fast enough for many purposes. It allows me to get the bit banging rate up to 9600 baud very comfortably. I could have pushed it faster but I felt that this was a good compromise between reliability and speed. One advantage of bit banging is that the program can be written to suit the polarity of any input or output serial signal, this allowed me to simplify the line interface.

The full circuit is shown in Figure I and as you can see there is not really much to it. All that needs doing to make the chip run is connect a crystal and two capacitors to pins 10 and 11 and connect pin 9 to the positive supply through a 1uF capacitor. This is the reset line and this arrangement ensures that at power up this pin is at earth. After a brief time it charges up and assumes a level of 5 volts and lets the chip run. To reset the chip just temporarily short pin 9 to earth. All the other pins on the chip are input/output lines.

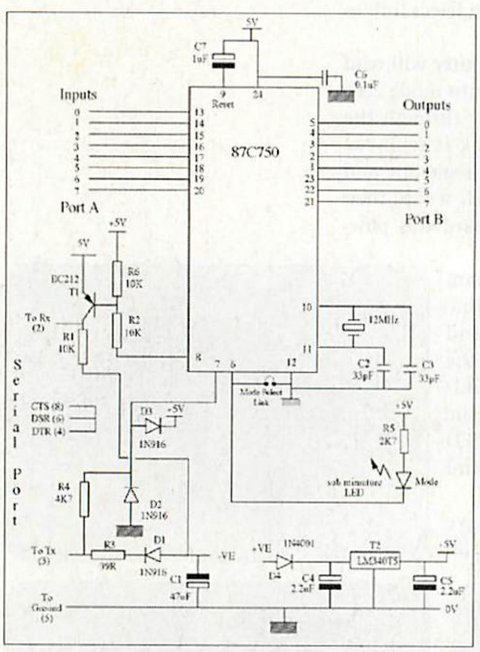


Figure I: Serial Input/Output Port

I have called the main I/O lines imaginatively Port A and Port B, this reflects their names used in the chip. Port A is used for inputs and Port B for outputs but that is only in mode 0. In the command mode any single bit can be used as an input or output. I have already discussed pin 6, the mode select and mode indicator line so lets look at pin 7.

I use this as the serial input from the computer – it will accommodate both the RS232 for the Risc PC and the RS434 of the earlier computers. I just clip the signal with diodes D2 and D3 to ensure that it stays inside the power supply rails. This signal is then upsidedown but the software can cope with that.

The negative excursions of the signal are captured with diode D1 and used to provide a negative supply for the serial output which is provided by the PNP transistor. This is driven by pin 8 which is used as an output.

This board needs to be powered with 5 volts which can be derived in two ways, a regulated supply and an unregulated supply. The unregulated supply, which can be virtually any battery eliminator is first passed through a series diode D4 to prevent any damage occurring if the supply is connected up the wrong way round. Unfortunately, no such protection is available for the regulated supply input.

Finally the board has to be connected to the computer. I have designed the pin out of the connector to be compatible with an insulation displacement cable having a 9 pin socket at each end, but feel free to use anything you like. Note that there are some control lines connected together at the board end. If preferred, these can be at the computer socket end allowing the use of only a three-cored cable.

Having sorted out the hardware let's look at the software. I want to leave mode 1, the command mode, for next month as it takes quite a bit of understanding so for now let's look at using mode 0. Mode 0 is simple – send the board a byte of data which it puts out on Port B, then it reads Port A and sends that byte back. In this way it is very easy to alter the output bits and command a read. Note that if nothing is connected to the inputs they will read as logic ones so no matter what is written to the board it will always send back &FF, this usually puzzles my students at first.

The only precaution that needs to be taken when reading the serial port is that there is something there to read, if not the computer can hang. I have used the serial calls rather than the old *FX calls as this provides a neat solution to this problem. The OS_SerialOp 4 command allows you to pass a value in R1 that is returned if nothing is read from the serial port; if something is in the buffer then R1 contains the value read.

This means if this is set to 256 it is possible to tell if anything has been read as this number can't possibly be an 8-bit value – also the carry flag is set when nothing is read. The basic idea is that you send a byte and wait in a loop for a short time reading the serial buffer. You come out of the loop when something has been received or your time is up. This is illustrated in the simple test program on the cover disc.

Also on the disc is a desktop application that will do the same job automatically, *SerialMon*. This brings up a window allowing you to click on bits to change them and also commanding a read every half second or so.

The received bits are shown as zeros and ones except when nothing has been received when they are shown as Xs. The hex value of the bit pattern is shown and the bits can also be displayed like good old LEDs.

• *Well that filled the space for this month. Next time I will conclude the project by looking at the complex command mode of the board.* AU

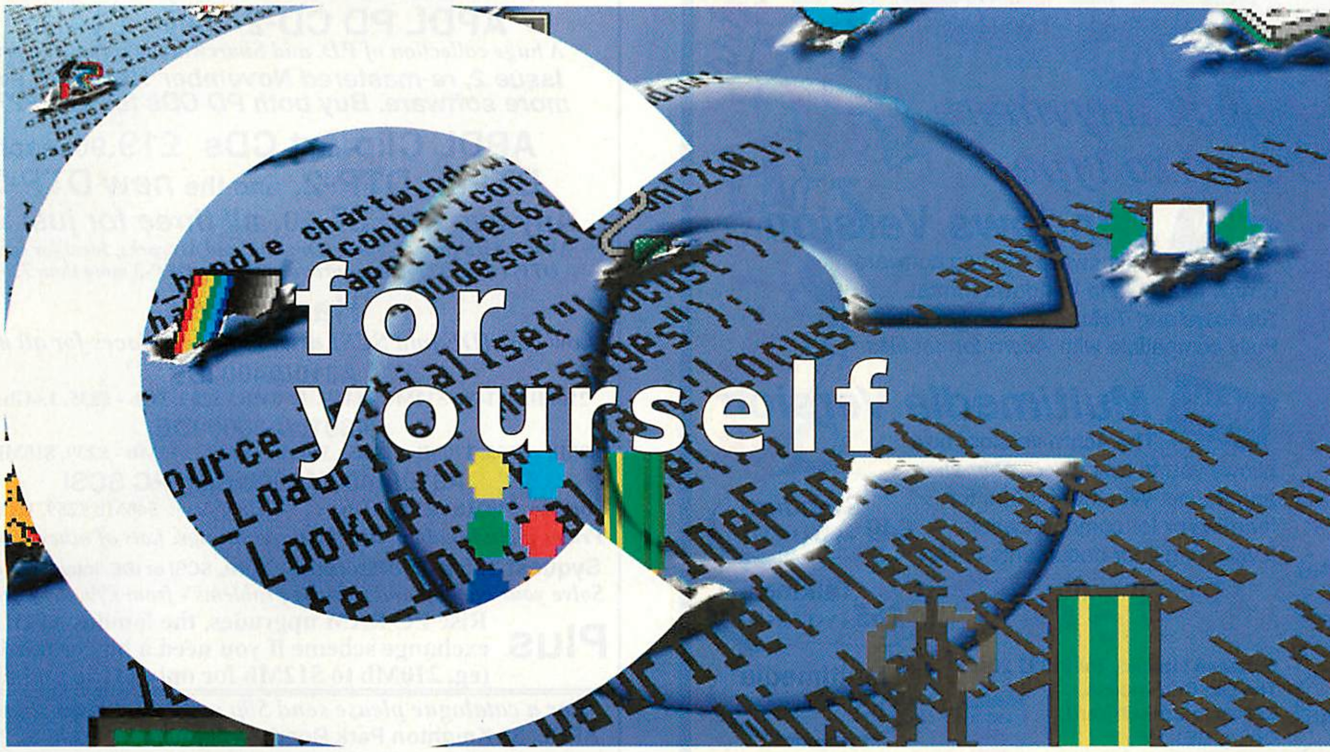
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Steve Mumford looks at some more sorting techniques

Conceptually, the simplest sorting method is probably the bubblesort, where the computer examines pairs of numbers and gradually rearranges the data so that with the highest value floats to the 'surface'. As discussed last time, its simplicity makes it easy to implement, certainly for fixed arrays of known size. However, any attempt to store data in a less rigid fashion (within linked lists, for instance) brings with it a greatly increased degree of complexity.

How do you improve the efficiency of a sorting technique? The bubblesort is essentially the lowest of the low in that regard and it's not universally loved. Another technique that's easy to understand is called *straight insertion* and instead of considering pairs of numbers throughout the sorting operation, it takes a different tack. It examines the first two elements in the list and places them in order – from there, it has a look at the third element and compares it with the first two, inserting it into the correct position.

Now there are three elements in order, so the algorithm can grab the fourth, insert that and so on. By the time the end of the list is reached, the data should be fully ordered. It might help to think of the way you order a hand of playing cards as an extra one is dealt to you each turn. Because this method builds from the ground up rather than tackling the whole block of data at once, the maximum time that the sort could possibly take is reduced. However, it's still notably inefficient.

A modification of this algorithm that can make it a little bit quicker is known as *Shell's Method* or simply *shellsort*. This technique works by doing a few quick insertion sorts over the data to begin with, shifting the elements into approximately the right locations. These successive sorts widen in scope until there's one sort that covers the entire array; it's that one that brings the elements into their final resting places. The first pass looks at numbers that are far apart in the starting sequence – a large number of sorts is performed with just a couple of numbers in each group – but with each successive iteration the spacing between the elements chosen for each group is reduced, leading to a few sorts with many elements in each set.

Other types of sort

If dealing with a large amount of information, two other sorting techniques are worth considering – the *quicksort*, invented by C.A.R. Hoare, and the *heapsort*, designed by J.W.J. Williams. Typically, the quicksort is faster and normally the fastest algorithm for sorting a large number of elements, but it's a somewhat complex process and requires extra memory to work. The heapsort, on the other hand, doesn't require any extra memory and although it's normally slower than the quicksort, can be easier to program.

The quicksort works by taking a set of data and gradually partitioning it into smaller and smaller portions – once they reach a certain size, it's possible to use a simpler sort such as the *straight insertion* technique. Once all these miniature data sets have been ordered, they can then be strung together once more to give the final result.

The partitioning is done by taking a data element, scanning through from both ends of the data set for numbers greater than this on one side and less on the other, and swapping them over – a point is reached where one side of the set is less than the partitioning element and the other side is greater. These two new partitions can then be sorted in the same manner and the process repeats until the units are small enough to be tackled by a more standard algorithm.

The heapsort works by building up relations between data elements in a way that resembles a family tree – each element has two children and one parent. As the tree is built up, the lowest numbers become the youngest children right at the farthest branches. Building the heap is the first stage – to sort it, the top of the heap is removed and the eldest child below it is promoted to take its place. In turn, its eldest child is also promoted and so on.

For more information about these methods, plenty of books are available that explain the algorithms concerned along with bits of source code. Next month we'll get back on the track of our embryonic WIMP application, filling in the cracks and making it fully operational. One more thing – if you've been writing your own applications in C and come across any problems, drop me a line and I'll try to help; if we can make a collection of the most common, I'll put them together for a future column.

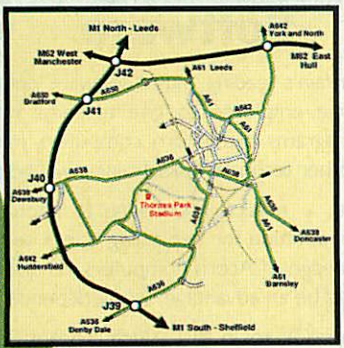
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Rambles through Acorn Wood

Another question and answer session with **Mike Cook**

Recently I have been puzzling over the shrinking inch. In days gone by when you bought a 13in monitor you got a monitor that measured 13in across the diagonal of the visible screen. That was certainly the case when I bought a monitor in 1990. Now it seems that this dimension no longer refers to the size of screen you see but to the size of the tube.

These are not the same thing as most monitors don't use the part of the tube close to the edge. What is worse, some monitors can't show a picture to the edge of the screen and leave a small border all the way round. Consequently my 17in Acorn monitor measures only 15in across the diagonal; most other so-called 17in monitors only measure about 16in at most. Now when did this definition change and who was informed? Just on the face of it I would think this was a case of contravention of the Trade Descriptions Act. Any lawyer out there want to take it up?

What I could really do with, on an Acorn computer, is a stand-alone spell checker – a small application you can drag a text file into that will check the spellings and allow corrections to be made. To be really useful it should also accept drawfiles and check the spellings on that. I have spell checkers on most of my Mac software so I am sure this would be very helpful to me and the other dyslexic people who use Acorns.

Is Acorn missing out on the university market? A colleague has found out that Xemplar's remit specifically excludes universities and other educational institutions. I know Acorn hasn't got a high profile in universities but it is about to get lower. Universities have different needs to schools when it comes to software and networking — it looks like no one is looking after them.

I seem to have stirred up a hive of interest about CD-ROM drive transfer rates. I've had lots of letters (well all right, three) from people who have suddenly realised that their CD drives are not performing at the required speed. A single-speed CD should work at 150K per second with double, quad and X8 the appropriate number of times faster.

It has come to my attention that many so-called "performance measuring" applications do not measure the actual transfer speed at all but simply look at the hardware and guess. The best way to measure it is to use the second hand of a watch and drag a large file, like a quick time movie, into the RAM disc. The maximum transfer rate will not be achieved but it should be close. The main problem seems to be with drives that were originally destined for the PC market.

Anyway on with this month's batch of questions. Daniel Laverick, North Yorkshire writes:

You may already know but there is a quite serious fault with most Acorn monitors – the power switch seems to be under-rated as the monitor seems to be a more inductive load than Acorn first anticipated. A result of this is that the switch will operate for a while, but the contacts will start to wear off, eventually crackle and then never turn on again.

This is always when you are halfway through a piece of work, go for a break, and come back to a dead monitor. The one I had trouble with was an AKF50 on an ancient A4000. However, my old school had to tape all the switches on, after the monitors started dropping off. Many replacement switches – rated to as large a current as possible – are relatively easy to install.

Is Acorn missing out on the university market? A colleague has found out that Xemplar's remit specifically excludes universities and other educational establishments

This will only apply if you turn your monitor on and off separately from the computer. Those with a monitor powered through the switch on the computer should be okay.

Jonathan David Amery from Cambridge is having a bit of bother finding the screen:

We are writing a program (in BASIC) which needs to be able to read and write to screen memory directly (on a Risc PC with 1Mb VRAM). However, none of us could remember where this is kept, I thought it was just below the 32Mb boundary but it gave an error when we tried that.

The base of memory depends on the screen mode. To find out, use the OS_ReadVduVariables variables call. Pass it two blocks one with the variable numbers, terminated by -1 and the other to hold the answers. Then make this call and the answer is in this block.

The variable number for the ScreenStart variable is 148. There is a program on this months disc that shows how to do it.

Frank Kelly from Taunton is tired of walking up and downstairs, he writes:

At home I have a Risc PC with 486 card upstairs, and a Pentium PC downstairs. What I would like to do is to be able to transfer files quickly from one to the other, and perhaps share items such as the printer, scanner and maybe even the PC's modem. Would it be at all possible to network the two computers cheaply with a couple of Ethernet cards and a piece of coax? If so, this would mean that there would be no more running up and down the stairs with floppy discs or heavy printers.

I should be most grateful for any advice you could offer on this matter. For example, which companies should I get in touch with? What software and hardware do I need for each machine? Also, how come I've seen PC Ethernet cards selling for as low as £30, whereas the prices of Acorn network cards never seem to drop below £100?

The best bet is to contact companies who sell Ethernet cards. I did a quick non-exhaustive check of two likely looking companies who advertise in *Acorn User* and came up with some solutions.

First off, the correct 10Base2 terminators are needed on both ends of the cable plus the correct software at both ends. According to Beebug perhaps the simplest solution is to use the 486 card at the Acorn end and run *Windows for Work-*



Rambles through Acorn Wood

groups at both ends. Alternatively, use this at the PC end and OmniClient at the Acorn end. However the latter package does cost £249 +VAT. An alternative solution comes courtesy of Kimberley Computers and that is to run *Arc Share* (£99 +VAT) at the PC end and *Acorn Access* at the Acorn end. I am told that this last package comes with Acorn's network card.

As to the price difference between networking cards, it comes down to quantity and quality. There are many "bargains" on PC hardware as the tail-ends of large Far East production runs are mopped up by fast buck merchants. With Acorn equipment you are probably paying a more realistic price.

This next letter caused some amusement when it landed from Martin Wakefield in Taunton, not because of it's content you understand but because he starts the letter Dear Mr. Wood, I'll have to change the name of this column:

We use Iiyama Vision Master 17 monitors at work and I am also very happy with the one attached to my PC at home. I recently had the opportunity to purchase another one at a reduced price, and so I thought "I could put it on my A3000, and then I would be halfway to an upgrade to a more powerful Acorn at a later stage". So much for the theory.

To cut a long story short, I managed to get a picture in modes 18-21 and 25-28 but a lot of my software refused to work at all, the monitor reported *no signal*, I lost count of the number of times I hit F12 and typed:

```
WimpMode 27
```

onto a blank screen. None of the modes I used before — 127 157 357 36 — worked, even though there is nothing in the RISC OS 3 User Guide suggesting why this might be. I eventually stumbled across the words "See your supplier for information on the kinds of monitor that you can use with the A3000 computer" in the *Plugs and Sockets* section of the Welcome Guide. As I bought the machine second-hand some years ago, this gets me nowhere. Have you any ideas of what I might do next, other than upgrade from an A3000?

Basically the problem with your monitor is that it can't cope with all the different video sync frequencies that your computer produces in different modes. However, it is possible to tell your computer to emulate these modes in a way with which themonitor can cope.

What you need to do is type in:

```
*Configure monitortype 3
```

or 4 depending on whether it is a VGA (3) or an SVGA (4). Then each time a program asks for, say, mode 15 the computer will do its best to match that resolution and colour depth with the limited capabilities of the monitor. This is sometimes known as a letterbox mode as often the screen is wide and not too high. The same sort of thing, but in a more limited way, happens with the Risc PC when it has to display modes below 16.

There are many 'bargains' on PC hardware as the tail-ends of large Far East production runs are mopped up by fast buck merchants. With Acorn equipment you are probably paying a more realistic price

Next Martin continues:

Another little project I have on the go is the transfer of a pile of text documents from my old BBC B to the A3000. The fun item here is the Watford communications software. I had the serial port on the A3000 checked out, but the engineer couldn't find anything wrong, and after trying other A3000's and other BBC B's, concluded it was the software. He didn't manage to find anyone at Watford who could help. Noting the question from Philip Ludlam in the November issue of *Acorn User*, I thought you might be interested in my findings.

The Watford kit comes with a lead, which I had to test with a multimeter and the pinout diagrams for both machines to find out which way to insert it into the BBC B. The software all runs on the Archimedes and the first thing one does is to transfer the "slave" program to the BBC and save it. It didn't transfer but hung the A3000. I edited the *FX3 command in the software to output to both serial and screen (*FX3,5) and saw that the A3000 was sending the first 255 characters and then hanging.

I then went into command mode and tried typing the file using a variety of baud settings — all this occurred over a number of weeks, in case this makes me look like the expert I'm not. I found that the 19,200 baud option didn't work at all, exactly as predicted by the BBC B's User Guide (it said it was "not guaranteed"), and then discovered that the 9,600 baud rate was a bit erratic, sometimes hanging and always corrupting the file being sent. But all was happy at 4,800 baud and the transferred program ran on the BBC B.

I then used the A3000 master and BBC B slave programs to successfully transfer a file — at 75 baud. The software should be able to run at higher rates but the BBC B steadfastly refuses to budge from 75 baud. I am now examining the code of the BBC program to see what is going on. It should be just a matter of time now, and then it's on to the Family History database but that will be another story!

When I do eventually get all the files off the BBC, I have a vague thought that my son might be able to use it to control his model railway. Could you point me in the direction of any suitable control units that might be available or any plans for a unit that I could build?

Thanks for the information on serial transfer, it's further complicated by the fact that the serial lead could be plugged in two ways round on the old 8 bit models.

When the port sends some data and then hangs, it is always a problem with the handshaking lines. It sounds like the master/ slave program is using the V23 protocol which only allows a 75 baud back channel.

Model railway control is quite easy, I have done many articles in the past about controlling DC motors. Now I come to look it up the last one was in the April 92 issue of *Acorn Computing*, you can get a copy from my web site http://physics.mmu.ac.uk/Acorn/ AU

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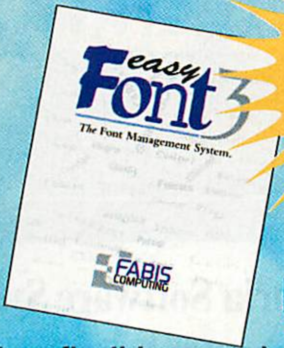


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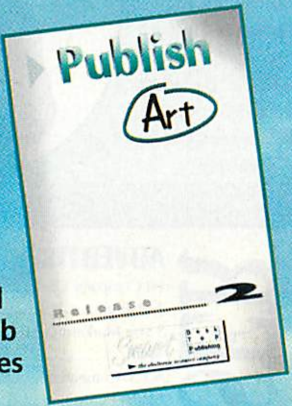
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2 Please send me the following FREE Gift/Special Offer (tick one):

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4206 ☐ Starfighter 3000 *FREE*
4207 ☐ Publish Art *Only £10*
4279 ☐ High Risc Racing *FREE*
4731 ☐ EasyFont 3 *Only £10*

For the gift pack please specify whether you require High or Low density discs (delete as appropriate)

3 Name (Mr/Mrs/Ms/Miss)..

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4 Now send your completed form and payment to Acorn User, Database Direct, FREEPOST, South Wirral L65 3EB. Tel: 0151-357 1275. Please state if credit card billing address is different from the delivery address. Photocopies or handwritten versions of the above information are acceptable.

ACORN USER guide to local dealers

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• For Sale: S-Base2 Developer plus pack, hardly used, unwanted gift, £80. Tel: (01353) 664219 after 6pm or weekends, ask for Andrew.

• Acorn A3010, 2Mb, CD-ROM drive, Dot matrix printer, Word processing package and games. 25 AU mags and discs, with original boxes. £260. Tel: (01305) 852984 (Dorset).

• Archimedes A410, 4Mb RAM, 20Mb HD, ARM3, RISC OS 3.1, Acorn colour monitor, keyboard, mouse, manuals, 15 games, ABC BASIC compiler, Deskedit. £250 ono. Tel: (01734) 890871 (Wokingham).

• A410/1, 4Mb RAM, ARM3, 105Mb IDE-HD, colour monitor, second disc drive, colour printer, RISC OS 3.1, manuals, software. VGC. £400 ono. Tel: 0181-530 2770.

• PRES monitor, plinth A3K2 for the A3000, with buffer board, two drives (3.5 and 5.25 in) and system housing. £55. Tel: (01923) 824063 (Middlesex).

• A3000, RISC OS 3.1, second 3.5 and 5.25 drives, 2 meg PRES housing monitor, lots of software, Impression Style, ArtWorks, etc. All for £200 ovno. Tel: (01495) 229173.

• A410/1, RISC OS 3.1, 2Mb, 20Mb HDD, Acorn monitor, manuals, various software, PC Emulator, Panasonic dot-matrix b/w printer, Z300. Tel: (01420) 561885 (Hants).

• A400, 4Mb RAM, 40Mb HD, Eizo 9060S monitor, ARM3, RISC OS 3, Wordz, PipeDream4, SBase2, some games. £300. Tel: 0181-289 5732.

• A410, 2Mb RAM, RISC OS 3.1, colour. All manuals. Software. Games. Very good condition and working order. £165 ovno. Tel: (01308) 427018 (Dorset).

• Free! 5.25 inch disc drive interface for A3000. Arc DFS. Both unused. Tel: (015395) 32657.

• Risc PC 586-100 card, as new. £250 ono. Phone 0181-473 0422. Ask for Gary or leave message.

• A5000, 4Mb RAM, 40Mb HD, LCurve, Acorn monitor, Bubble jet printer, games including Virtual Golf, Saloon Cars, Cyberchess, Chopper Force, Chocks Away, Desktop C. Hardly used. £600. Tel: (01733)719539.

• Wanted: A4 laptop, preferably 4Mb RAM, 80Mb hard disc. Tel: (01279) 652858.

• A5000, 4Mb, 420Mb HD, Aleph-1, 486DX50 card with 8Mb SIMM. SCSI card, midi-sampler, hand scanner, AKF52 monitor, software. £1000 ono. Call Mark on (01892) 863341.

• Acorn AKF60 monitor, unused, purchased in error, £300. Also Phillips 8833 colour monitor, £55. Tel: (01737) 823519 (E Surrey).

• Acorn A5000. c/w AKF50 m/s monitor. 4Mb RAM, 120Mb HD. Much software and magazine discs. Boxed. As new. £700 ono. Tel: Worthing (01903) 690031.

• PC DX4-100, 850Mb HD, 16Mb RAM, 14in colour monitor, CD-ROM drive, 16-bit sound card, keyboard, mouse, speakers, joystick, software galore inc Win95, £850. Tel: (01457) 861927.

• Acorn A3010, 4Mb RAM, 120Mb Hard drive, 14 inch mono monitor, dust cover, very good condition. £350. Tel: 0385 745334 (mobile).

• A3000, 4Mb RAM, RISC OS 3.1, Educational software, Phillips monitor, Star NX-1000 printer, all hardly used, £250. Tel: Sevenoaks (01732) 761575.

• A3010, 4Mb RAM, 80Mb external hard disc, Cumana Parallel CD-ROM with sound mixer, lots of discs, books and mags. £350. Tel: (01908) 233008 (eve).

• A3010, 4Mb with 60Mb hard disc on ultimate interface, AK52 monitor with Schema, 1st Word etc. £350. Parallel CD-ROM, £80. Phone: Tony (01925) 264223.

• Acorn 3010, 4Mb RAM, 40Mb H/drive, monitor, virus killer, games plus other software, microspeakers, Turbo driver for Canon printer. £300. Tel: (01484) 843393.

• Swap IBM PS/2 for A30x0, 2Mb, RISC OS 3.1. Tel: Martin (01709) 817648.

• RPC710, 25Mb, 1Gb HD, SX33, 16 bit sound, SCSI, 4xCD, Scanlight, Eagle M2, Eidoscope, Publisher, ArtWorks, Photodesk, 14.4k modem, may split, £1650 ono. Tel: 0181-650 4679 (eves).

• A3000, Acorn 2 Meg computer, £130. Manuals, keyboard, 14in NEC Multisync colour monitor, £90. Tel: Roy on 0181-967 3048 (North London).

• Cumana Oscar dual speed CD-ROM. Parallel port. Complete with manuals and cables. £100. Tel: Southampton (01703) 847086.

• A30x0, 120Mb HD, £80. A3010 computer without RISC OS chips, £50. A3010, 1-2Mb, £20. Flashback, Gods, £10 each. Tel: Robert on (01229) 774350 after 6pm.

• Archimedes A5000 with Learning Curve, 40Mb Hard Drive, 4Mb RAM, lots of software, plus lessons/advice if required. £595. Tel: (01963) 362143.

• Acorn computer, 2Mb, 3 years old. £1200 when new. Printer, games, applications, boxes and manuals included. £400 ono. Phone (01223) 880323 after 5pm (Cambridge).

• For sale: 2x8Mb SIMMS tested in Risc PC, £25 each. 1Mb VRAM for RiscPC, £30. 340Mb IDE hard disc for RPC, £50 Contact Neil on 0385 935497 or e-mail: neil.spellings @argonet.co.uk

• Easy C from Risc Developments, £25. Tel: (01253) 853835.

• GAMES! Flight Sim Toolkit £15. Populous, Speedball II, SWIV, Loopz, Gods, Serpents, all £6. All games vgc, boxed, as new. Phone Dave (01752) 253327.

• Games for sale! High Risc Racing, Zool, Gods, Cannon Fodder, Heimdall, £10 each. Will post. Phone Barnaby on (01489) 894521. Also Morpheus, £10.

• Wanted: 5.25in disc drive, printer driver software, dot matrix printer for BBC B. Tel: 0181-504 1159.

• A5000 Learning Curve, 4Mb RAM, 420Mb + 80Mb Hard disc, AKF50 monitor, 24-bit real-time colour digitiser, sound sampler LC10 colour printer. RISC OS 3 PRM's, Easy C, PC emulator + plenty more software, ClipArt, PD, games, music, graphics, fonts, Epson Stylus printer with latest Turb driver v4.11. Tel: 0181-498 9747 (evenings).

• Archimedes 420 with b&w laser printer, Epson EPL7100. RISC OS 3. Impression, 1st Word + few games. Offers invited. Tel: (01484) 531856 after 4pm.

• A3010, 2Mbit Action pack with software. Under 2 years old, with box and instructions. VGC, £180. Tel: (01923) 775395 (Watford).

• Risc PC, ARM710, CD, 12Mb, 1Mb Video RAM, sound card, RISC OS 3.6, 520Mb HD, Impression Style, Turbo printer drivers, £875 ono. Tel: Bolton (01204) 841459.

• For sale: Chopper Force, Birds of War, Speedball 2, Populous, Sim City, Apocalypse. Swaps considered. Wanted: Dune II, Dreadnought - good condition. Phone Michael (01923) 243658 evenings.

• Canon BJ-230 Bubblejet printer, bought late '95, little used, £250 (was £399) incl accessories. Will deliver in S. Wales area. Tel: (01792) 865197.

• Archimedes A410/1, 35MHz, ARM3, RISC OS 3.11, 4Mb RAM, 210Mb IDE hard disc, colour multi-sync monitor + extras. £300 ono. Tel: (01329) 282277.

• Wanted: Hand held scanner for Acorn A3000, will pay £30-£40 if all included. Does not have to be colour. Phone after 4pm (01484) 841687.

• Risc PC600, 8Mb DRAM, 1Mb VRAM, AKF60, 420Mb HD, 486SX card, CD-ROM, Cumana SCSI 2, 2 slice, Style, MovieFS, + games. £1000 ono (p&p inc). Tel: Paul (01705) 423192.

• A3000, colour monitor, 4Mb, RISC OS 3, DOS, colour printer, Learning Curve package, manuals, educational and games software. £325 ono. Tel: (01580) 754972 Kent.

• A310, 4Mb RAM, RGB monitor, ARM3, RISC OS 3.1, Backplane, SCSI interface, 100Mb disc, MEMCIA, PC emulator. £375 ono. Tel: 0117-986 4671.

• Acorn A3010 2MEG, 64MEG hard drive, lots of software and magazines. £275 inclusive. Tel: Yeovil (01935) 25974.

• Swap A3000 HCCS multipodule system for A3010 version or sell for £65 Tel: (01935) 25974.

• Amstrad NC100 notepad computer with BBC Basic built in. £65 Tel: (01935) 25974.

• A5000, 2Mb, 40Mb HDD, AKF17 colour monitor, PipeDream 4, Eureka, EasiWriter, PC Emulator, DataPower, DOS 6.0. All boxed and manuals. £350. Tel: (01254) 771427 (Blackburn).

• A3010, 2Mbit Action Pack with software. Under 2 years old, with box and instructions, VGC. £180. Tel: (01923) 775395 (Watford).

• A4 Portable 4MB + 40Mb Hard disc, £749 o.n.o. A540 8MB + 250Mb Hard Disc + Acorn SCSI Card + Monitor + Acorn C + DDE + lots of software, £799 o.n.o. ARVIS Videograhics card inc. Genlock/16 bit framestore/ digitiser/overlay/chromakey etc. £299 o.n.o. Tel: Stuart on (01792) 204519.

• Acorn Archimedes 310 with Acorn colour monitor + keyboard + Mannesman Tally printer, £100 ono. Tel: (01706) 218042 (Blackburn area).

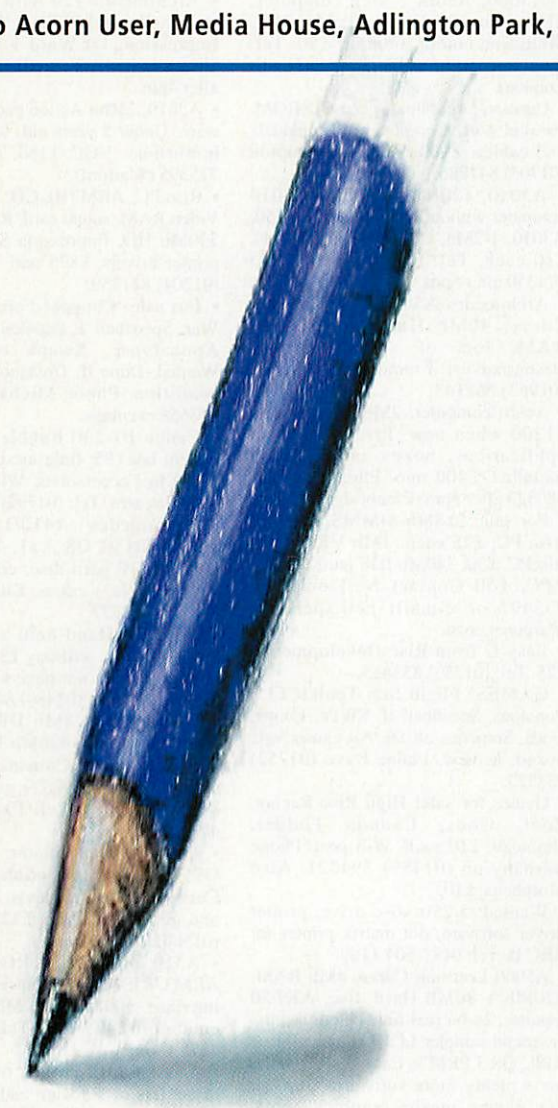
• Acorn SX86 Risc PC card, 100MHz for sale, £250 ono. Tel: Gary 0181-473 0422.

Acorn User Free Ads Service

Why not take advantage of our free reader ad service? Fill in your details on this coupon (25 words maximum, one word per box below) and send it to Free Ads, Acorn User, IDG Media Ltd, Media House, Adlington Park, Macclesfield SK10 4NP. Only one ad per reader, please. Although we try to publish every ad we receive, we can make no guarantees; publication is entirely dependent on space and time constraints. We may also publish free ads on the cover disc if magazine space is short. Please fill in your name and telephone number below: these will not be published, but they enable us to contact you in case of any queries.

Your name:.. Telephone no: ....

Write to Acorn User, Media House, Adlington Park, Macclesfield, SK10 4NP. E-mail: auletters@idg.co.uk



Listing Web pages

Clint Lees said that it would good to have a list of Web pages mentioned in the magazine (Dec 96).

I like this idea and propose that it be kept on the Internet. This would allow people who can access the net to look at them. For those people who not on the Web, a list could be put on the monthly cover disc or yearly CD-ROM.

This would allow many people to contribute to *Acorn User*, with each sending a list of Web pages and details to the Web page maintainer.

You could also extend it to include e-mail addresses. I hope this does become a reality as I would benefit from using it.

Phil Ludlam
E-mail:pludlam@epschool.demon.co.uk

I can see this job getting harder by the minute. The original idea was just a directory of the Web pages mentioned in the current magazine, which is feasible. In fact readers with Web access will find that I have started adding links on the magazine page on the Acorn User Web site.

However what you're thinking of is a completely different field event, and unnecessary for us. There are those who have specialist interests who already compile such link pages, the trick is finding them and the best way to do that is to use an Internet Search Engine.

There are a number to choose from but the best for searching the whole Web is undoubtedly Alta Vista which you can find at ***http://www.altavista.digital.com/*** *— it's worth reading the help pages for it because it has some very useful features to help you refine your search to precisely what you desire. Or you can read the feature in the August 1996 issue of Acorn User.*

The older and sometimes preferred option is Yahoo! which is at ***http://www.yahoo.com/****. While Alta Vista indexes almost every word on the entire (accessible) Web, Yahoo! uses categories so you can search specific areas or simply work down their tree of sub-categories until you get what you want.*

To find link pages on a particular subject, such as Acorn games, you could try an Alta Vista search such as:

```
+Acorn +games +links url:uk
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which searches for Web pages that must contain the words "Acorn" (with a capital A), "games" and "links" and the url must contain "uk" — this provides quite a few answers.

On the radio

Having always wanted a radio card in my RiscPC 700, I was delighted to see Mike Cook's hardware section on how to convert a Reveal FM radio card to work on an Acorn from a PC.

I eventually got round to going to that horrible place *PC World* to get one. They didn't have any so I started phoning around. I eventually found out that Reveal went bust a few months ago and cannot get the card to do the conversion.

Having looked at a traders advert, I could get one for a tenner – except I have to place a minimum order of goods adding to a total greater that £500. Do you know of anywhere I can get one of these cards, as I have already re-written the software Mike Cook wrote and am eager to get my favourite station blasting through my computer's external speakers.

I would be most grateful if you could help me – or any other readers who may have been in a similar situation.

Toby, E-mail: Toby.Mackenzie@f480.n440.z2.fidonet.org

Mike Cook replies*: Well, with the customer service they gave me I am not surprised they went bump. I did see some in Tandy shops some months back but maybe they have sold them all.*

I can only suggest looking in (holds

breath) PC mags, if there is any surplus some one is bound to pick them up. In the meantime Games World do have a stereo FM radio that plugs into the serial port of a PC for about £50, but the software will be totally different.

Sounding off

I have an A7000 computer and I have noticed that several games and at least one other program will crash as soon as they are loaded. I found that if you turn the sound off with *AUDIO OFF the programs will run fine.

This is OK for games but one of the programs that doesn't work is !APTracker. This kind of defeats the object of it. !Splodge is a game that doesn't work and it would be nice to hear what the sounds and music are like. Is there anything I can do about this? Is there a new version of !APTracker that will work on an A7000?

I like Acorn computers and I regret having to write this on a PC because my A7000 isn't on the Internet. I enjoy reading *Acorn User* and I like the *INFO programs. One day I hope to have some of my own programs published. I have produced a small platform game and I was wondering what are the laws about freeware? On many other PD games I have read a !ReadMe file that says "This program is freeware, you can distribute it a much as you like, as long as none of it is altered" Do you have to register your program for it to become freeware?

If you don't copyright it, can people steal your ideas title and even the graphics from your game without breaking the law? How do you copyright games and how much does it cost?

Matthew Grum (age 14),
E-mail: grum@btinternet.com

The sound system on the A7000 is different to earlier versions because it provides proper support for 16-bit sound. You could try turning it off using the !Configure program — though that's not guaranteed to work. You should look for newer versions of the software as 8-bit sound can be awful on the A7000, if it works at all.

This is a fairly simple (possibly simplistic) view of copyright but covers most of the angles: Ideas are not subject to copyright — if you tell someone about an idea you would have no comeback if they implement it.

However when you create something (written, painted, created on computer) you instantaneously possess the copyright (that is the right to copy) as it flows from your fingers. It is yours unless you have created it in the employ (and for) someone else.

You can transfer your copyright to someone else, or even give it up completely. The term Public Domain implies that you give up copyright, it usually means that you are giving up all rights to the product and anyone can do what they like with it.

However Freeware usually means that, while you are giving it away for free, and permitting others to make copies of the complete product — you are keeping control of the way the product is put together.

With a completely PD product you could tear it to pieces and use sections in your own code. In a Freeware product you can't without the express permission of the original author.

The problem is that not everyone agrees on these terms so they're used without much agreement on the definitions — PD is used, particularly, in a generic way to cover all forms of "free" software.

The best thing to do is to make clear in the help file exactly how you intend your software to be used. Taking a look at what other authors do will give you an idea of what to say.

Backing it up

Having purchased a Yellowstone IDE card together with a 1.2Gb hard disc, in addition to the 420Mb I already have, I'm starting to think about acquiring some form of backup device. How's about a comprehensive review of the various devices available? I'd write it myself if you post me the kit!

Justin Stringfellow, e-mail:
jstring@aol.com

We'll be taking a look at Zip drives next month and these provide a reasonably low cost way of backing up large amounts of disc space along with a commercial or PD backup programs — ones which compress the backups are particularly useful, if the target media is reliable.

Spreading the word

In the letter section of the December *Acorn User* (no 175), Brian Ferris commended the work being done by Innovative Media Solutions enabling certain Microsoft and DK CD-ROMs to be used on the Acorn platform but regretted that little seemed to be being done by the respective publishers in promoting the increased usability of their products.

Could I bring to his attention through your columns that Dorling Kindersley has a direct sales outlet called Dorling Kindersley Family Library, whose task it is through its independent distributor sales force, of which I form part, to promote the entire range of DK products, including the range of CD-ROMs and the reader disc into homes, schools, offices and to other end user outlets throughout the UK (as well as in Russia, USA and Australia).

If he, or any other reader would like to know how to get involved to help get these superlative products into the home as well as enthusing about the Acorn product, I'd be happy to supply more information. I can of course supply *The Way Things Work* as well as the other DK titles for which there is a reader disc, in one package.

I can be contacted at: 14 Tottehale Close, N Baddesley, Southampton, SO52 9NQ. Tel (01703) 740103.

John Burchmore

An apology

We would like to apologise to those people who have taken up the 10/10 Software offer. Unfortunately the demand was considerably higher than was anticipated and we haven't been able to keep up. We will be fulfilling the orders as fast as we can but would ask you to be patient.



Neil Critchell and Mark Watson

The Regan files

Neil Critchell and Mark Watson jointly run and own Eesox, the company that brought the 'cheap' CD to the Acorn platform – Eesox cut the gold CD for *Acorn User's* first CD-ROM.

'It was Neil that came up with the name,' Mark explains. 'When we started we had to keep our options open – we did not want to be stuck with something in the lines of CDs'R'us, because as a marketing tool the name should not pin us into one small category. If someone came up and said "Do you do this?", we could say yes.'

Neil continues: 'It's not an acronym or anything, it's just a name which wandered into my thoughts one day. I can't put a finger on my influences for it but it stuck and we got a company name which everyone remembers but no one can spell.'

'And it sounds like Xerox,' Mark concludes.

Neil and Mark first met when they both worked for a Cambridge company called Next Technology where they were doing contract work for Acorn. They both left to go and work in different companies – Mark to Cambridgeshire Software House (although he still did some contract work for Acorn) and Neil to Acorn.

'I worked on the Risc PC there,' says Neil. 'I was responsible for the SCSI on the motherboard that isn't there. Basically, Acorn cancelled the bit I did – although Macs have SCSI as standard – it got pulled because it was deemed financially unviable.'

The future was written on the kitchen table for them as Neil explains, 'We had both worked for small companies which had been set up by one or two people. We thought: "yes, we could do that too. The only thing we have to find is our niche – easy."

'At the time it was not a huge risk, because we could always find employment. So we just did it. There was none of this, 'go see the bank manager' stuff; we each had saved £3,000 for the venture, which was not difficult seeing what we were earning. We drew up a sketchy business plan and our office then was the kitchen table (the start of all good businesses).

'That was about four years ago, and we have employed two staff and now have this wonderful oven to make baked potatoes in – a Belling, the type that everyone has when they live in rented accommodation. Plus we have these Bohemian-style offices which look like they should house creative artists.

'Oh, and we have an Indian takeaway two doors down. The pub is a bit further away,'

When Eesox first started, Neil and Mark said firmly that they were not going to sell drives, they were not box-shifters. Then they saw how much CD-ROM drives were selling at and thought 'That is ridiculous – we will sell and bring the price down'. They did.

'It's getting to the point that technology is getting so cheap that by the time you've developed it you do not make any money on it. Prices alter so quickly that we do not put prices in our ads because by the time they come out they are lower.'

'The good thing about our job is that it gives us opportunities to see things. We went to the ARM Club Open Day in Solihull because we could get to see the motorbike museum there. We did plan to do something with Acorn Australia but that all fell through – a shame because an outback tour seemed right up our street.'

Why do they do it? So Neil can afford his badminton games and Mark can have his most important developers tool: his steering wheel games joystick? Or so they can dream about dangerous sports?

Neil and Mark are good at joking and messing around but their knowledge of the market and the technology they're in is second to none.

They both believe that it is good to run a business and make a profit from what they enjoy doing; that they can't get bored because there is always something new to learn. For the future they want to continue quietly churning out good products and they believe small is good because customers can actually get to speak to the people in charge.

I'll leave the last word to Mark: 'There is one thing I want to know: what do people *do* with their StrongARMs? Surely they cannot use all that amazing speed for word processing and the odd doodle? I would like to see an article in *Acorn User* about the strange things people use a StrongARM for.'

Jill Regan

'There is one thing I want to know: what do people do with their StrongARMs?'